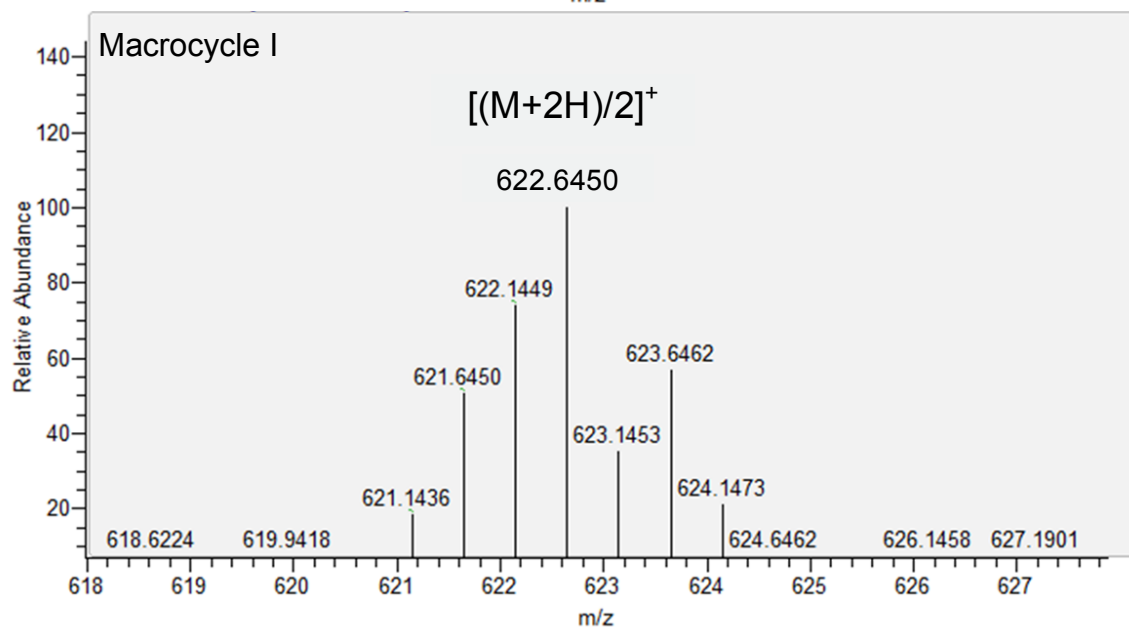
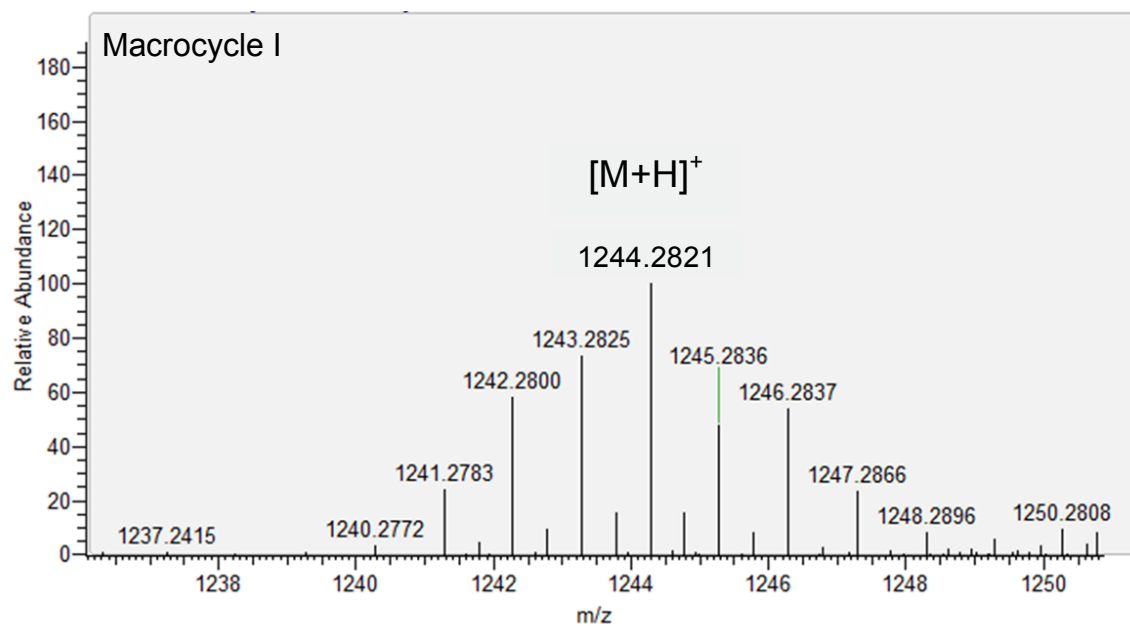
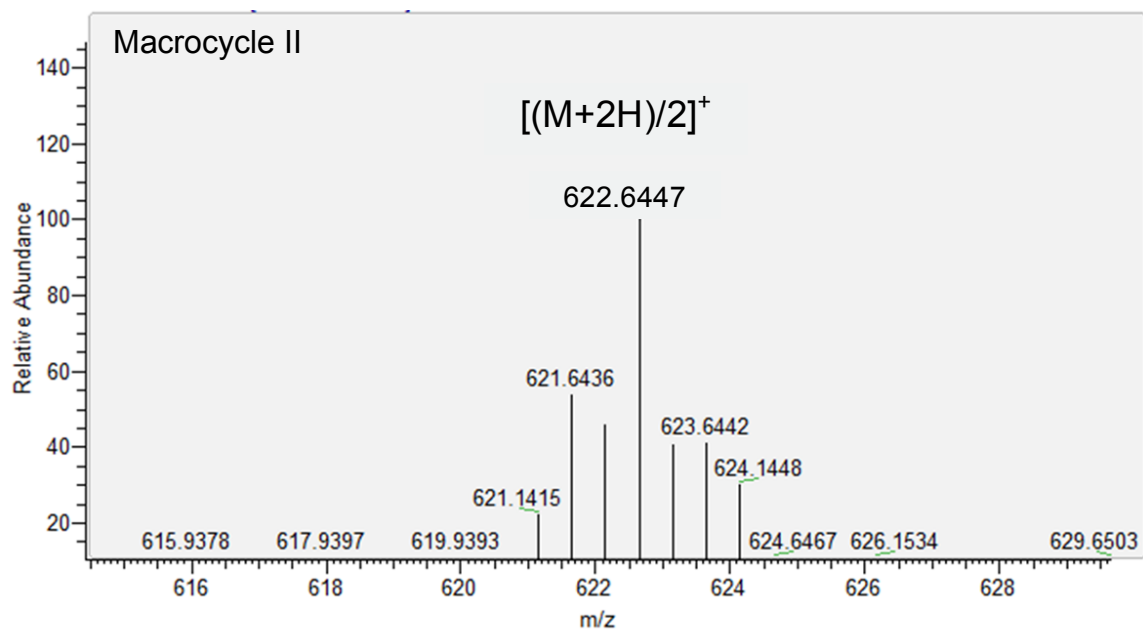
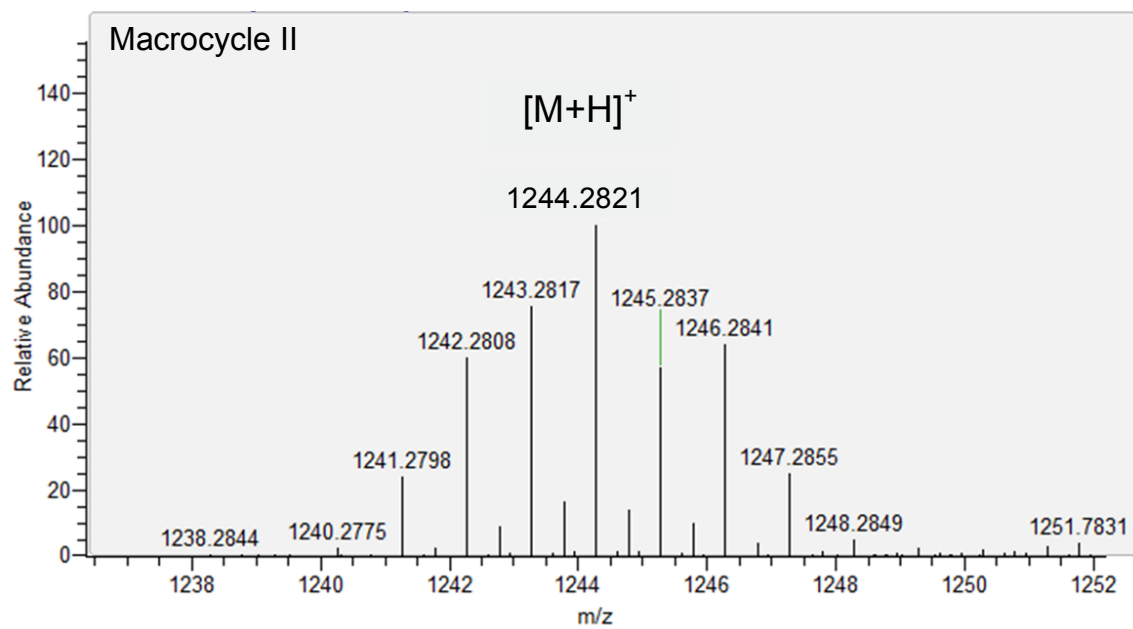


## Supporting Information

A)

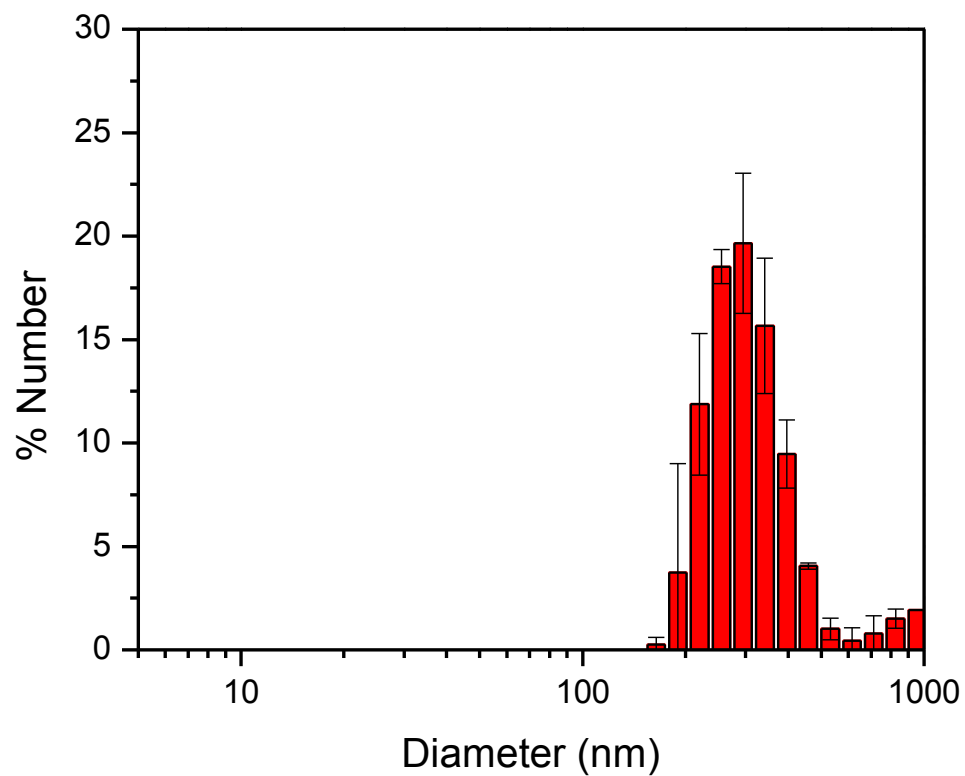


**B)**



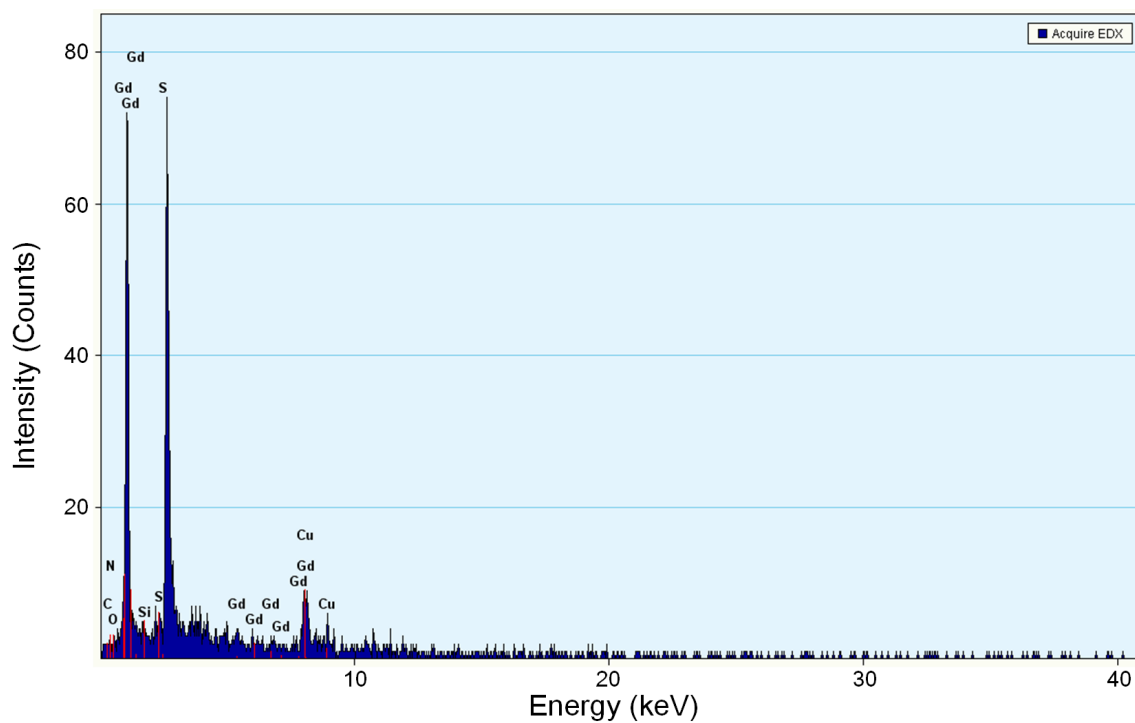
**Figure S1.**

HRMS of cyclized products of macrocycle I and II. A) HRMS of macrocycle I: calculated for  $C_{49}H_{58}GdN_{12}O_{11}S_3 [(M+H)^+]$ : 1244.2751, observed. HR-ESI/MS:  $m/z$  1244.2821; calculated for  $C_{49}H_{59}GdN_{12}O_{11}S_3 [(M+2H)/2]^+$ : 622.6415, observed. HR-ESI/MS:  $m/z$  622.6450. B) HRMS of macrocycle II: calculated for  $C_{49}H_{58}GdN_{12}O_{11}S_3 [(M+H)^+]$ : 1244.2751, observed. HR-ESI/MS:  $m/z$  1244.2821; calculated for  $C_{49}H_{59}GdN_{12}O_{11}S_3 [(M+2H)/2]^+$ : 622.6415, observed. HR-ESI/MS:  $m/z$  622.6447.



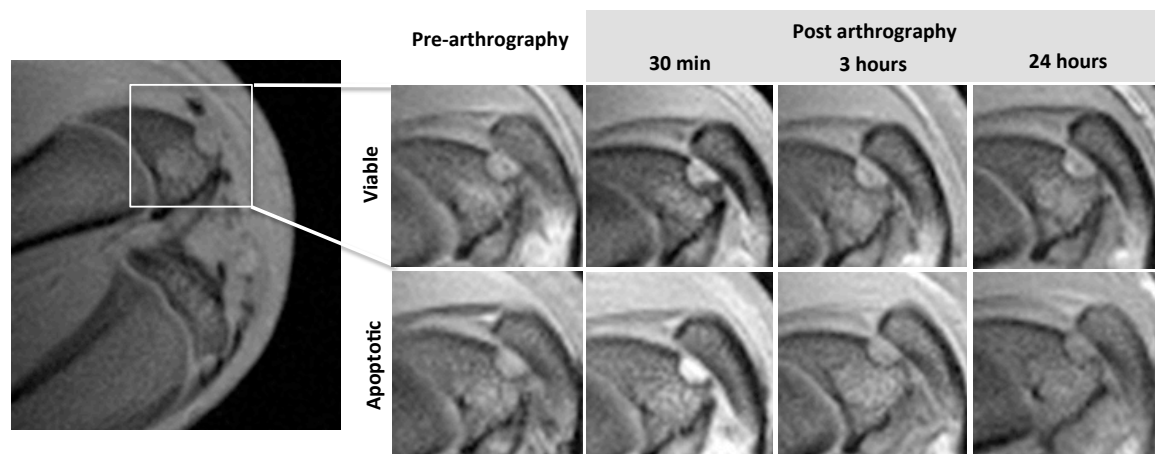
**Figure S2.**

DLS analysis of C-SNAM (200  $\mu$ M) following incubation with caspase-3 (50 nM) in caspase buffer (pH 7.4) overnight. Error bars indicated standard deviation, coming from two repeated measurements.



**Figure S3.**

Energy-dispersive X-ray (EDX) spectroscopy analysis of the nanoparticles in Fig. 1c shows the presence of Gd element signal from the particles.



**Figure S4**

*In vivo* MRI of viable and apoptotic rASC implants. T1 weighted MR imaging of the viable and apoptotic rASCs before, 30min, 3 hours, and 24 hours after intra-articular injection of the C-SNAM.