## Electronic Supplementary Information

# Nanoparticle-mediated delivery of siRNA into zebrafish heart: a cell-level investigation on the biodistribution and gene silencing effects

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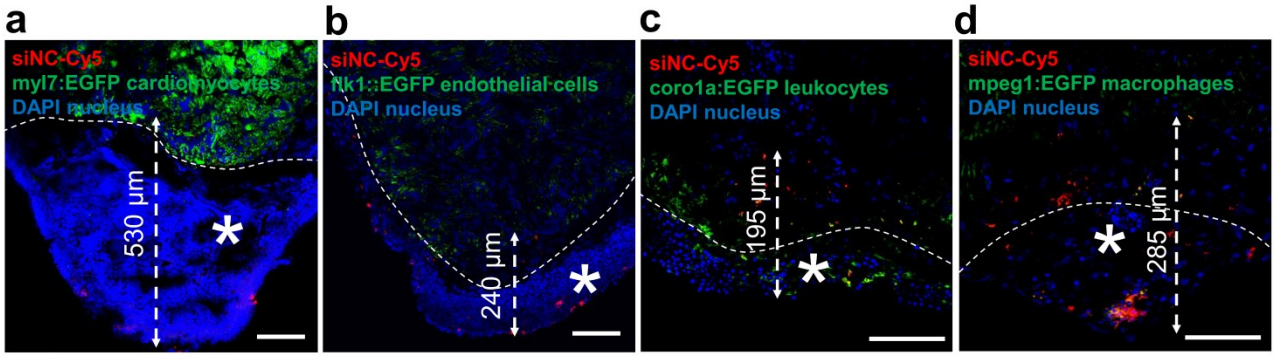


**Fig. S1** The diffusion area of nanoparticles in injured hearts of a) Tg(myl7:EGFP), b) Tg(flk1:EGFP), c) Tg(coro1a:EGFP) and d) Tg(mpeg1:EGFP) zebrafish. The white dashed line pointed out the injury border zone which is the transition area of injured to healthy area of the heart. The white asterisk indicated the injury area where the nucleuses dyed with DAPI were denser than other area. The white straight dashed lines with arrows indicated the maximum distance of nanoparticles to the apex of heart. It could be found that the maximum distance correlated with the injury size of heart and were about 200 μm to about 500 μm in the amputated hearts (scale bars, 100 μm).

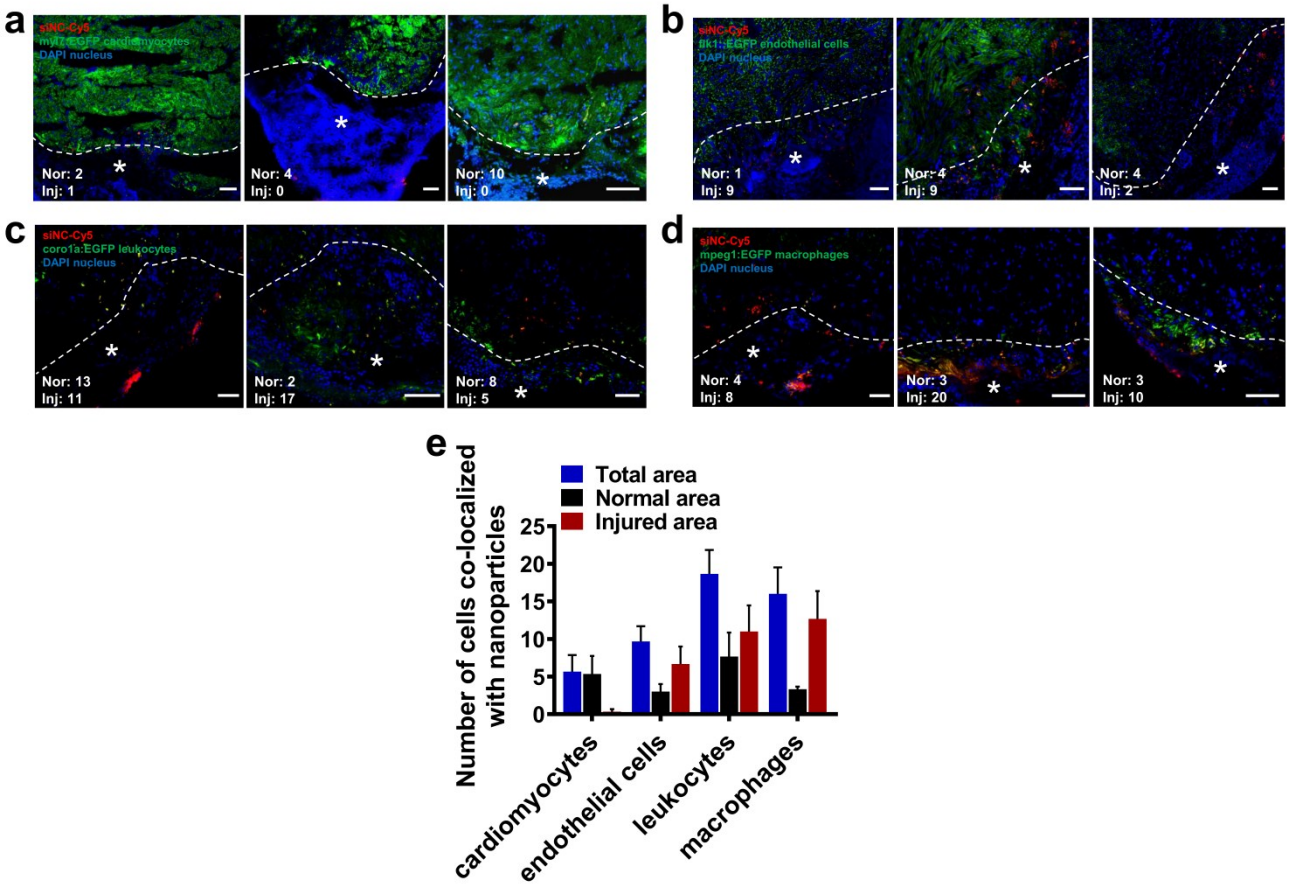


**Fig. S2** Analysis of cells co-localized with nanoparticles. a) Cardiomyocytes, b) endothelial cells, c) leukocytes and d) macrophages co-localized with siNC-Cy5 nanoparticles in normal or injured area were analysed. Three representative images from three zebrafish hearts respectively were used for calculation. The dashed white line pointed out the injury border zone which is the transition area of injured to healthy area of the heart. The white asterisk indicated the injury area where the nucleuses dyed with DAPI were denser than other area. (Scale bars, 50 μm; Nor, Normal area; Inj, Injured area; numbers indicated the co-localized cell numbers in each area) e) Statistical analysis of co-localized cell number in normal area, injured area or total area. (Mean ±SEM; n=3)

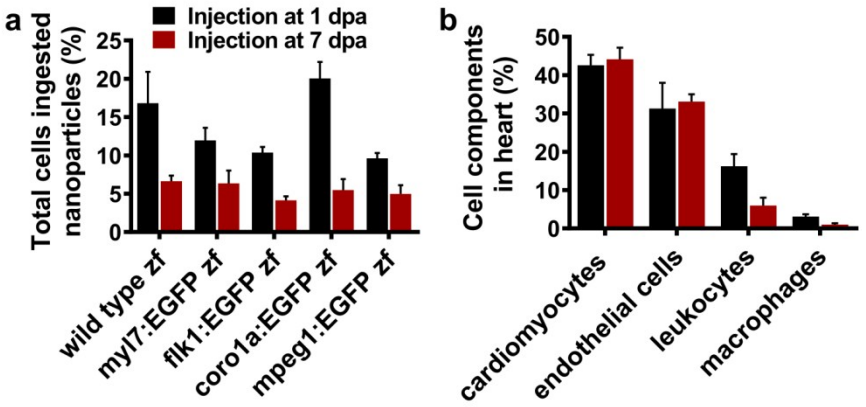


**Fig. S3** a) The percentage of cells that ingested nanoparticles when injection occurred at 1 dpa or 7 dpa in wild type or different transgenic zebrafish with specific cells expressing EGFP. b) The relative number of each kind of cells in the zebrafish heart. (Mean±SEM; n=3~5, N=3).