Electronic Supplementary Material (ESI) for Nanoscale Advances.

Supporting Information

Reprogramming of macrophages with macrophage cell membrane-derived nanoghosts

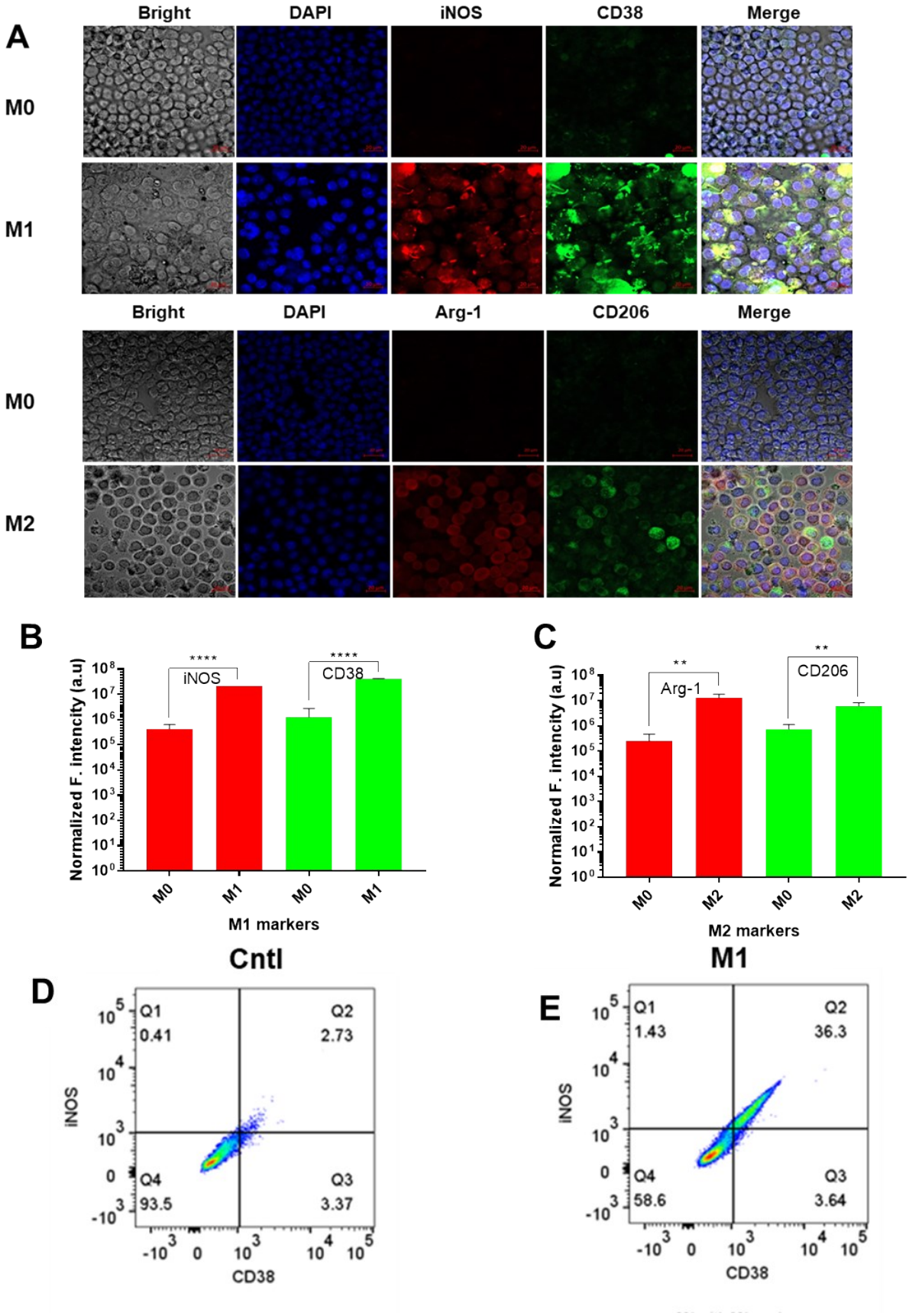
Jangsun Hwang[1], Mengjia Zheng[1], Christian Wiraja[1], Mingyue Cui[1], Lixia Yang[1], Chenjie Xu[1,2,3]*

[1] School of Chemical and Biomedical Engineering, Nanyang Technological University, Singapore 637457

[2] National Dental Centre of Singapore, 5 Second Hospital Ave, 168938, Singapore

[3] Department of Biomedical Engineering, City University of Hong Kong, 83 Tat Chee Avenue, Kowloon, Hong Kong SAR, China

[*] Correspondence to chenjie.xu@cityu.edu.hk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DAPI
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CD38
Merge
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Normalized F. intencity (a.u)
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E
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1.43
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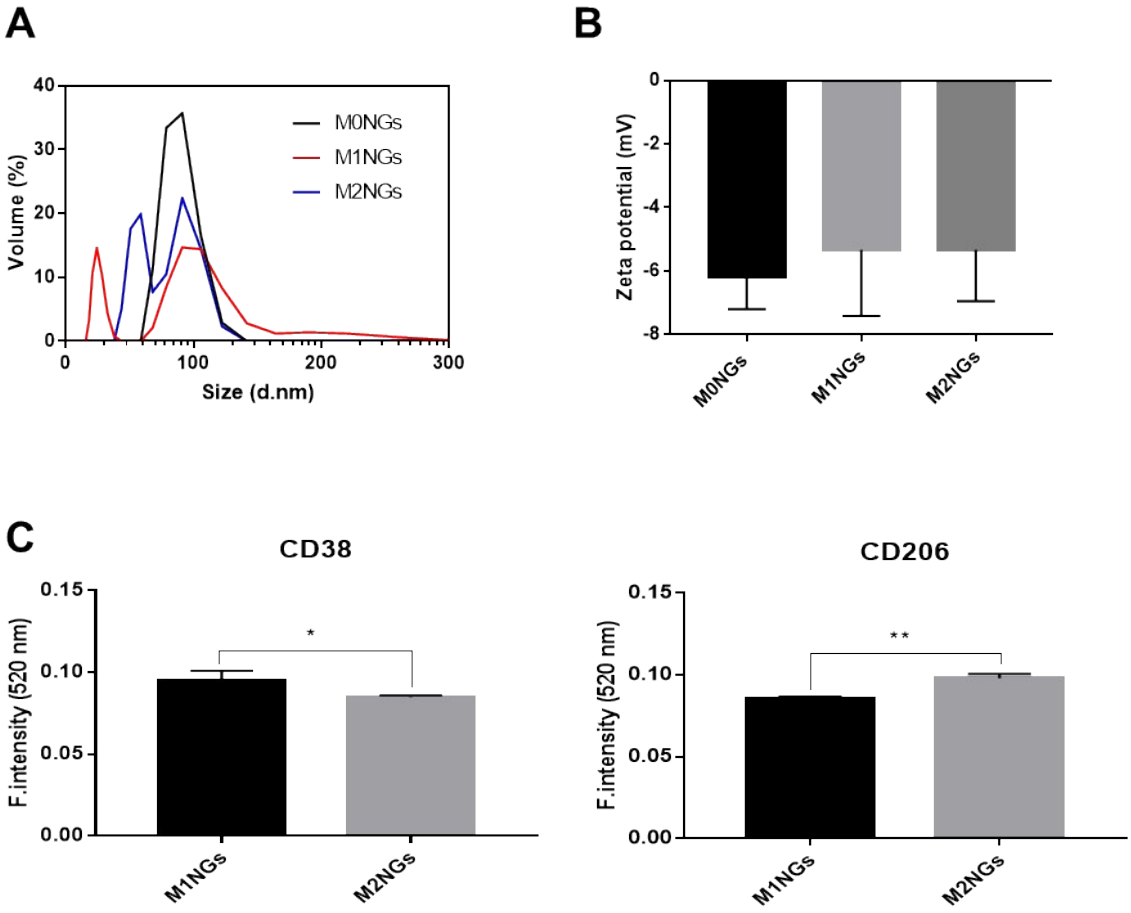
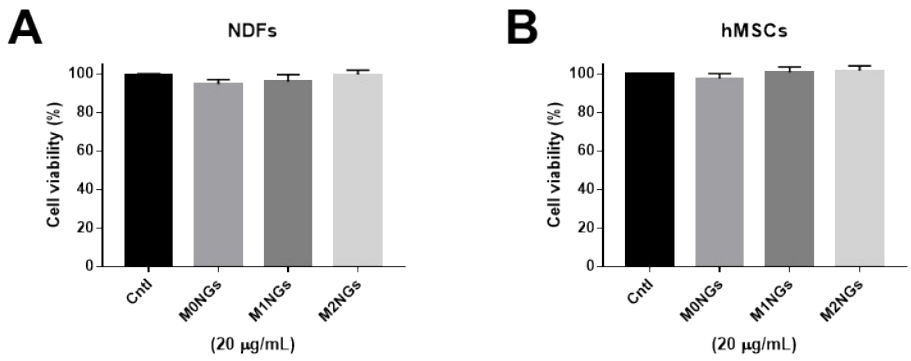
iNOS
CD38

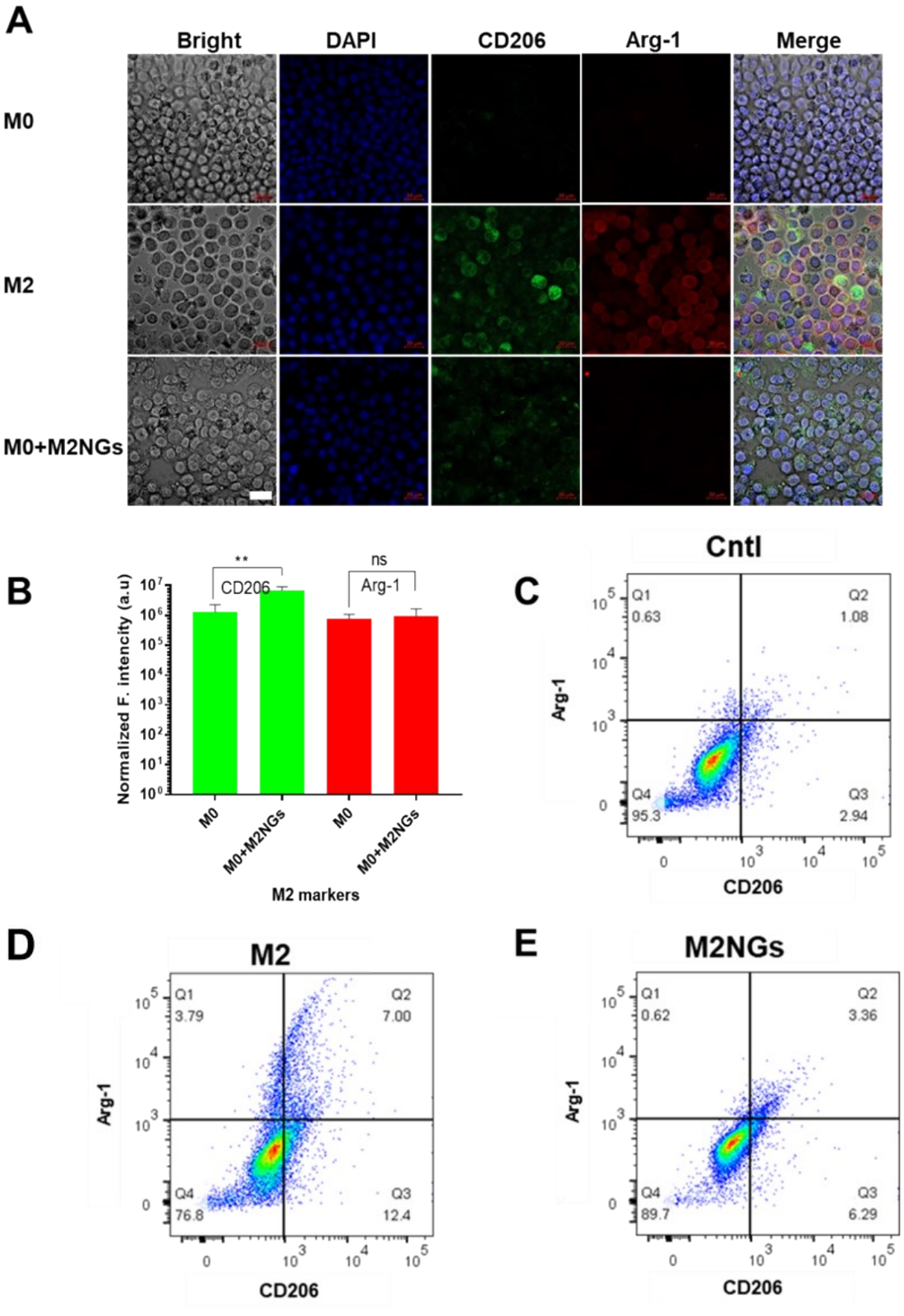
Supplementary Figure 1. Polarization of J744A1 macrophages. (**A**) Immunofluorescence staining of M1 and M2 macrophages. Cells were stained with Anti-CD38 antibody (Green) and Anti-iNOS antibody (Red) for M1, Anti-CD206 antibody (Green), Anti-Arg-1 antibody (Red) for M2. Scale bar=20 μm. (**B**) Quantification of iNOS and CD38 expression on M1 macrophages. (**C**) Quantification of Agr-1 and CD206 expression on M2 macrophages. **P<0.01, ****P<0.0001. (**D**) FACS analysis of M0 macrophages with M1 makers. (**E**) FACS analysis of M1 polarized macrophages with M1 makers (M1 markers: PE- iNOS, FITC-CD38).



Supplementary Figure 2. Characterization of nanoghosts derived from RAW 264.7 macrophages. (**A**) Hydrodynamic diameters. (**B**) Zeta potential of nanoghosts. Comparison of (**C**) CD38 and (**D**) CD206 expression on nanoghosts derived from M1 or M2 macrophages. *P<0.05, **P<0.001



Supplementary Figure 3. Cytotoxicity of nanoghosts derived from M0, M1, and M2 Raw 264.7 macrophages. 20 μg/mL of nanoghosts against (**A**) NDFs and (**B**) hMSCs.


A
Bright
DAPI
CD206
Arg-1
Merge
M0
M2
M0+M2NGs
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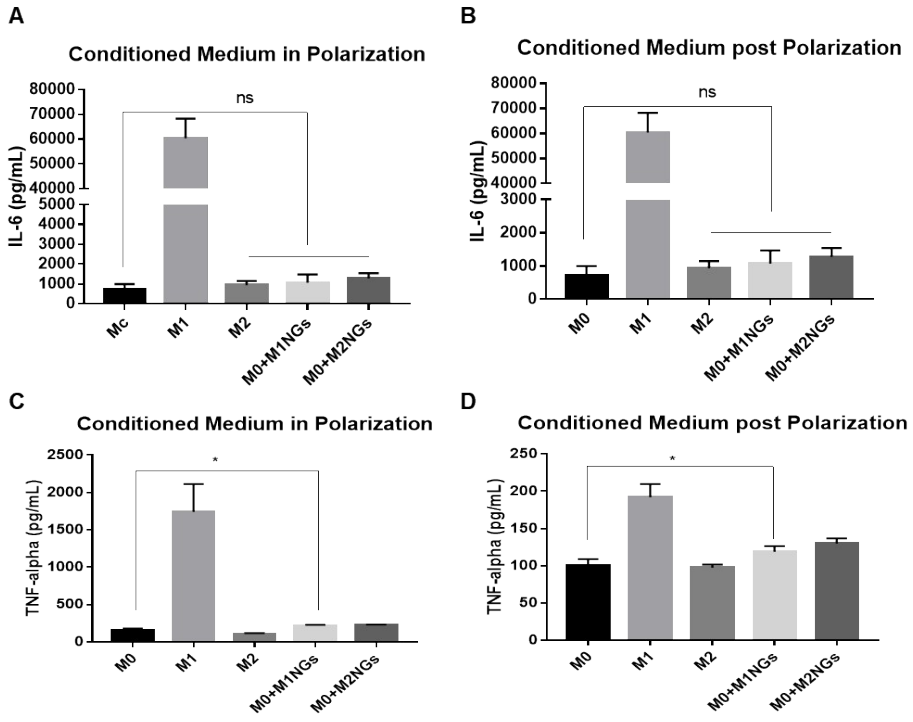
Normalized F. intencity (a.u)
M0
M0+M2NGs
M0
M0+M2NGs
M2 markers
C
Cntl
Q1
0.63
Q2
1.08
Q4
95.3
Q3
2.94
Arg-1
CD206
D
M2
Q1
3.79
Q2
7.00
Q4
76.8
Q3
12.4
Arg-1
CD206
E
M2NGs
Q1
0.62
Q2
3.36
Q4
89.7
Q3
6.29
Arg-1
CD206

Supplementary Figure 4. Reprogramed J744A1 macrophages (**A**) Confocal images of J744A1 macrophages (CD206: Green, Arg-1: Red, Scale bar is 20 μm). (**B**) Quantification of M2 markers expression (*P<0.05, **P<0.01, ***P<0.001.) (**C**) FACS analysis of macrophages as control. (**D**) FACS analysis of M2 polarized macrophages by cytokines. (**E**) FACS analysis of reprogramed macrophages by M2NGs (M2 markers: CD206 and Arg-1).



Supplementary Figure 5. ELISA analysis of cytokines (IL-6, TNF- **α**) in the conditioned media from M0, M1, M2 macrophages and M0 macrophages-treated with M1NGs and M2NGs (**A, C**) at the 4th day of polarization. Conditioned media post polarization at day 2 post the medium replacement (**B, D**). (ns=no Signiant, *P<0.05).

Comment [XC(P]: Scale bar in A can not be seen.

Font in B-E is away too small compared with that in A.

Suggest to re-arrange images

A
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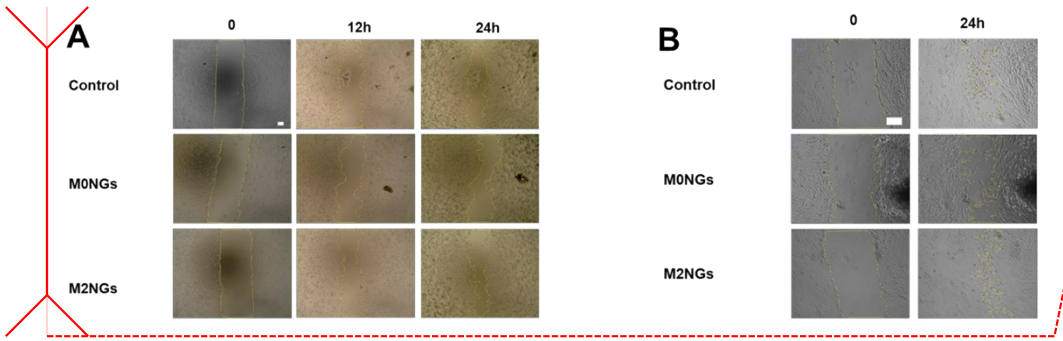

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Supplementary Figure 6. Reprogramming macrophages with nanoghosts in scratch assay. (**A**) Representative phase-contrast images of wounded NIH-3T3 mouse fibroblasts cocultured with Raw 264.7. (**B**) Representative phase-contrast images of wounded NDFs human fibroblasts cocultured with Raw 264.7.