Supporting information

Hyaluronic acid-based extracellular matrix triggers spontaneous M2-like polarity of monocyte/macrophage

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Supplementary method

Live dead staining

Culture medium was removed from cell and washed DPBS. LIVE/DEAD™ Viability/Cytotoxicity Kit (Invitrogen™) was treated to cell for 15 min at 37 °C. Then, Fresh culture medium was added to cell and image the sample by microscope.

<table>
<thead>
<tr>
<th>Primer</th>
<th>Forward</th>
<th>Reverse</th>
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<tbody>
<tr>
<td>hHAS1</td>
<td>GGTGGGGGACGTGCGGATC</td>
<td>ATGCAGGATACACAGTGGAAAGTAG</td>
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<tr>
<td>hHAS2</td>
<td>GTGGATTATGTACAGGTTTGAT</td>
<td>TCCAACCATGGGATCTTTCTTT</td>
</tr>
<tr>
<td>hHYAL1</td>
<td>CATCAAGGAGTAGATAGGACAC</td>
<td>CAGGGTTAAGGAGGAGGA</td>
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<tr>
<td>hHYAL2</td>
<td>GATTACCTGACACGGCTG</td>
<td>GAAACTGTGGTGGCTGAGA</td>
</tr>
<tr>
<td>hHYAL3</td>
<td>TTTCCCTGCTGCCCACCTT</td>
<td>CTGGGAGGGTTGACTGTTA</td>
</tr>
</tbody>
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Supplementary table 1 Primer sequences used in qRT-PCR
Supplementary figure 1 Images of live/dead staining of THP-1 cells in the 3D matrix

Green indicates live cells and Red indicates dead cells (scale bar: 100 μm)
Supplementary figure 2 Gene expression of HA metabolic gene

Relative gene expression levels of HA synthesis (HAS1, HAS2) and HA degradation (HYAL1, HYAL2, HYAL3) (n=4; significant difference is determined by Student’s t-test, no sign for no significant difference)
Supplementary figure 3 HA releasing assay

(A) Standard curve for HA releasing assay with HA solution. (B) Concentration of HA concentration from cell culture medium every 2 day. The concentration of HA is no significant difference among samples according to time. (n=3; significant differences were determined by Student’s t-test, no sign for no significant difference)
Supplementary figure 4 Quantification of western blot analysis. Densitometry was performed by Image J to quantify the expression of representative protein. (A), (B) The expression of CD44 and phosphorylated STAT3 pSTAT3) was normalized to expression of GAPDH and total expression of STAT3 respectively.
Supplementary figure 5 Morphology of differentiated THP-1 cells in 2D

Phase images of differentiated THP-1 cells (M0, M1, M2) after 5 day cultivation (Scale bar: 200μm)
Supplementary figure 6 Images of live/dead staining of differentiated THP-1 cells within 3D matrix

Green indicates live cells and Red indicates dead cells (Scale bar : 200 μm)
Supplementary video

Supplementary video 1 Live imaging of THP-1 cells within COL

Supplementary video 2 Live imaging of THP-1 cells within HA-COL