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Supplementary Information

A spatiotemporal release hydrogel based on M1-to-M2 immunoenvironment in wound management

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Table S1. The gene-specific primer sequences.

Gene name	Direction	Primer sequence (5′-3′)
GAPDH	Forward	CCTCGTCCCGTAGACAAAATG
	Reverse	TGAGGTCAATGAAGGGGTCGT
iNOS	Forward	CTGCTGGTGGTGACAAGCACATTT
	Reverse	ATGTCATGAGCAAAGGCGCAGAA C
Arg1	Forward	CAAGGTGGCAGAAGTCAAGAA
	Reverse	GCTTCCAATTGCCAAACTGTG
TGF-β	Forward	CCACCTGCAAGACCATCGAC
	Reverse	CTGGCGAGCCTTAGTTTGGAC
IL-10	Forward	CTTACTGACTGGCATGAGGATCA
	Reverse	GCAGCTCTAGGAGCATGTGG
IL-1Ra	Forward	TCTATGATGCAAGCTATGGCTCA
	Reverse	CGGCTCTCCTTGAAGGTGA
TNF-a	Forward	CAGGCGGTGCCTATGTCTC
	Reverse	CGATCACCCCGAAGTTCAGTAG
IL-6	Forward	CTGCAAGAGACTTCCATCCAG
	Reverse	AGTGGTATAGACAGGTCTGTTGG
IL-12	Forward	GTCCTCAGAAGCTAACCATCTCC
	Reverse	CCAGAGCCTATGACTCCATGTC
CCL5	Forward	TTTGCCTACCTCTCCCTCG
	Reverse	CGACTGCAAGATTGGAGCACT
CCL17	Forward	TACCATGAGGTCACTTCAGATGC
	Reverse	GCACTCTCGGCCTACATTGG
CCL1	Forward	TGCCGTGTGGATACAGGATG
	Reverse	GTTGAGGCGCAGCTTTCTCTA
CCL22	Forward	CTACAGACTGCACTCCTGGTTGTC
	Reverse	GGGCCTGCCTCAGTTGCT
VEGFA	Forward	GTAACGATGAAGCCCTGGAGTG
	Reverse	TCACAGTGAACGCTCCAGGAT
PDGF	Forward	CCAGGACGGTCATTTACGAGA

	Reverse	TGGTCTGGGTTCAGGTTGGA

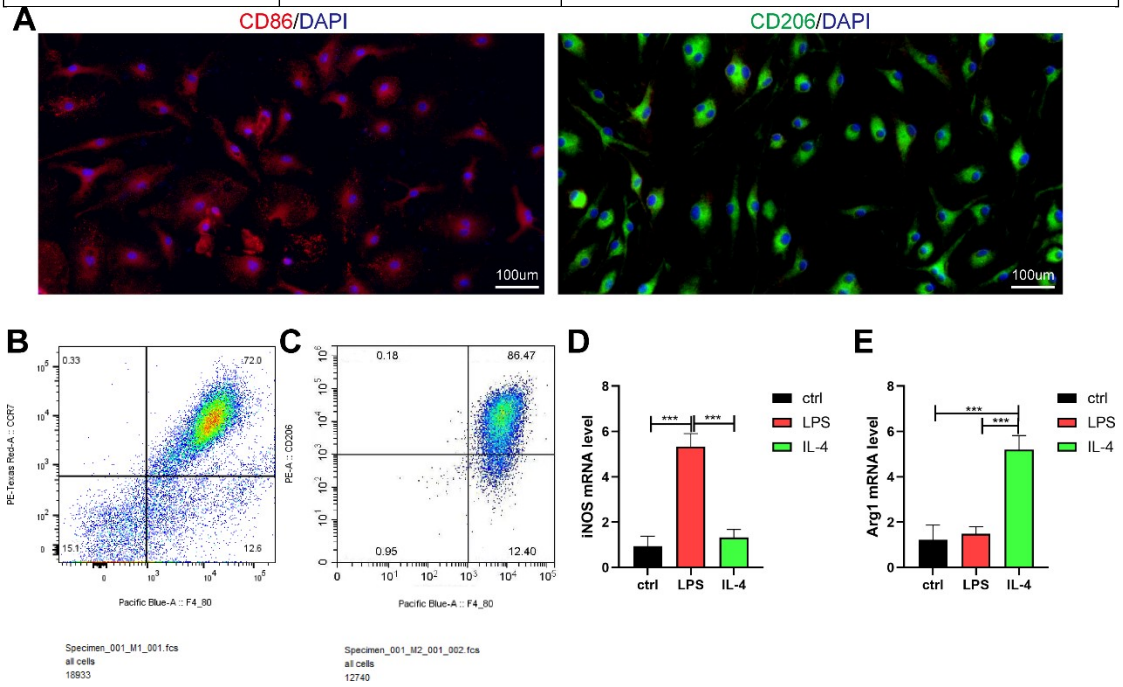

Figure S1. Macrophage polarization. (A) The morphology of polarized macrophages and fluorescence immunolabeling results for an M1 marker (CD86) and M2 marker (CD206). (B-C) Flow cytometric analysis of macrophage population within polarized macrophages. (D-E) Real-time PCR analysis of markers of M1 (iNOS) and M2 (Arg1) macrophage polarization.

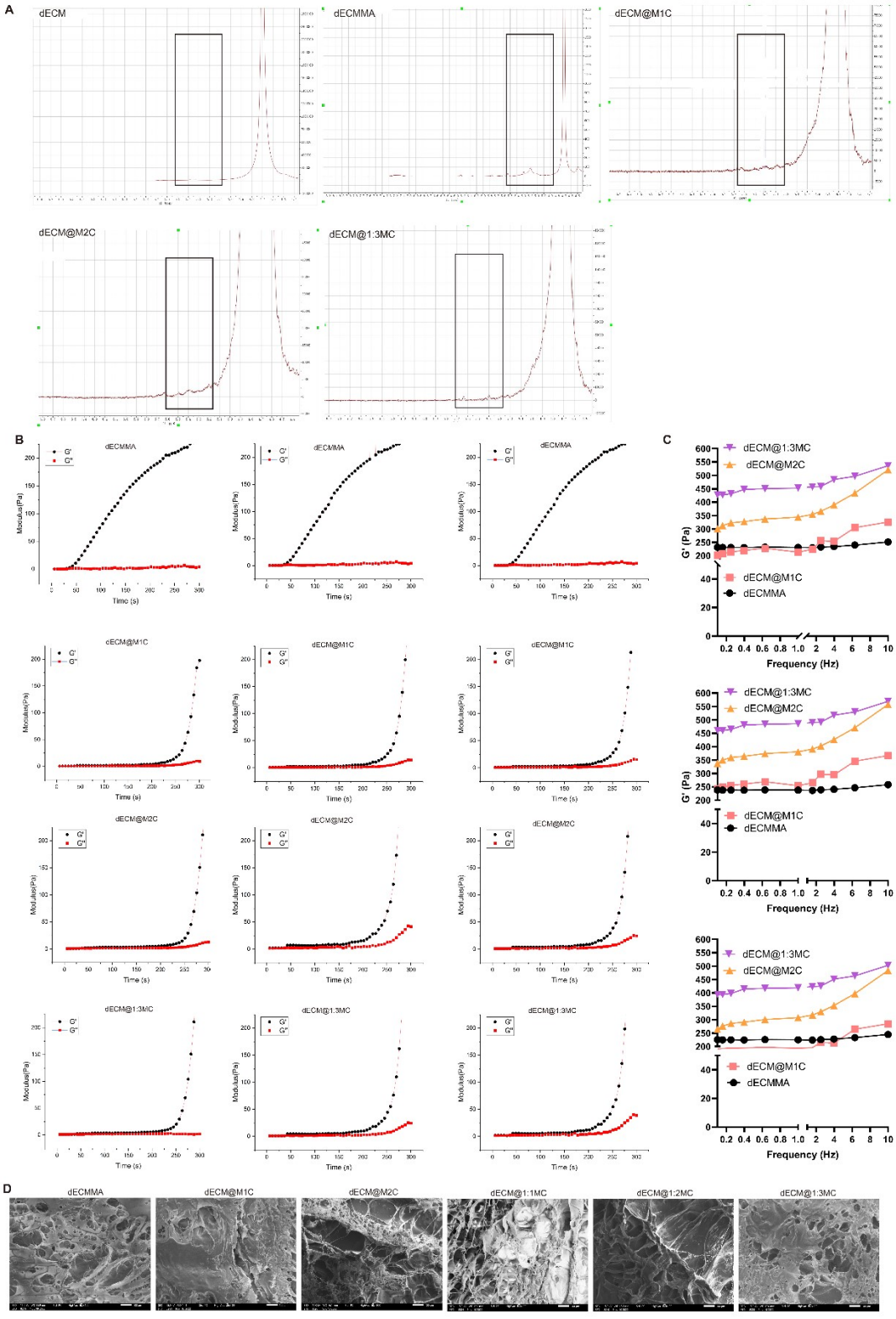

Figure S2. Hydrogel characterizations. (A) H^1 NMR measurement. (B) Frequency-sweep assessment of storage modulus (G') and loss modulus (G") of dECMMA, dECM@M1C, dECM@M2C and dECM@1:3MC hydrogels. n = 3. (C) Frequency-sweep assessment of storage modulus (G') of dECM@M1C, dECM@M2C and

dECMA@1:3MC hydrogels. n = 3. (D) SEM images of dECMMA, dECM@M1C, dECM@M2C and dECM@1:3MC hydrogels. n = 5. Scale bars, 100 μm.

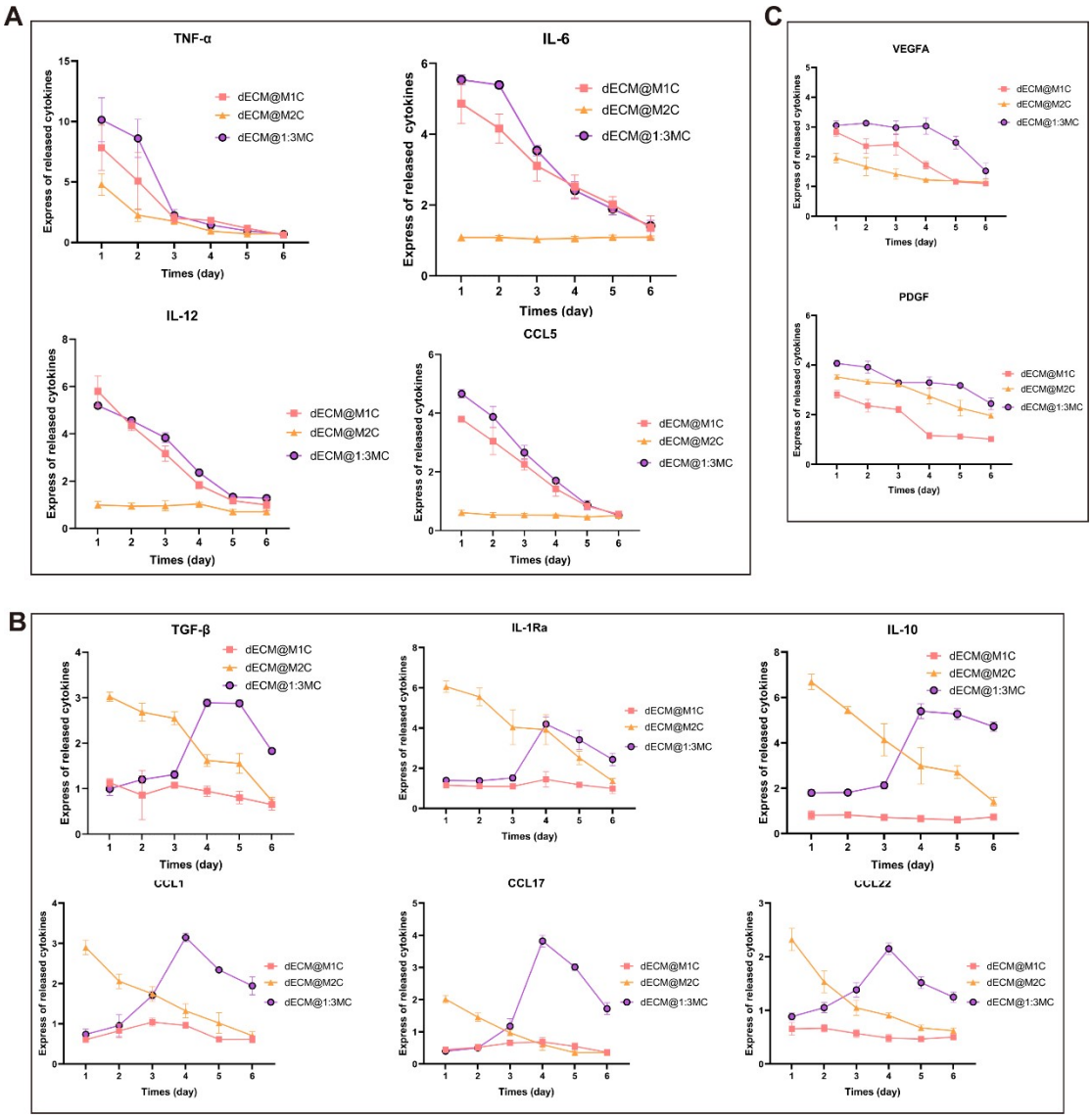

Figure S3. Dynamical expressions of multiple macrophage-associated cytokines. (A) Analysis of M1 phenotype related cytokines. n = 3. (B) Analysis of M2 phenotype related cytokines. n = 3. (C) Analysis of M1 and M2 phenotype common related cytokines. n = 3.

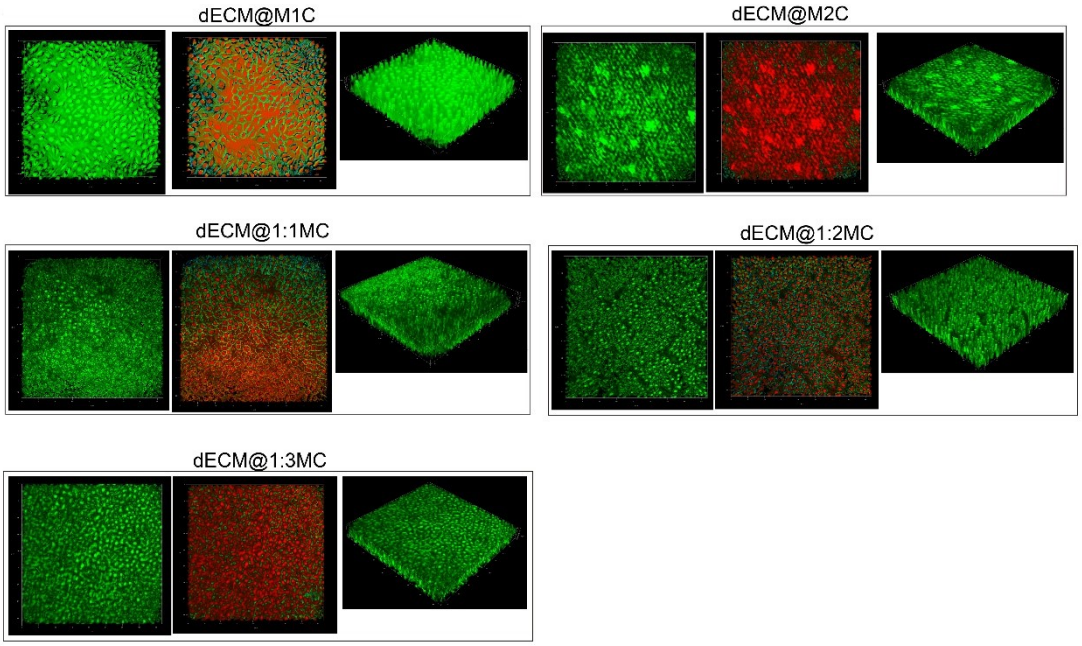

Figure S4. Effect of dECM@MC on fibroblast 3D morphological changes. 3D-fluorescence images were constructed from Z-stack images using the LAS X 3D image analysis software.

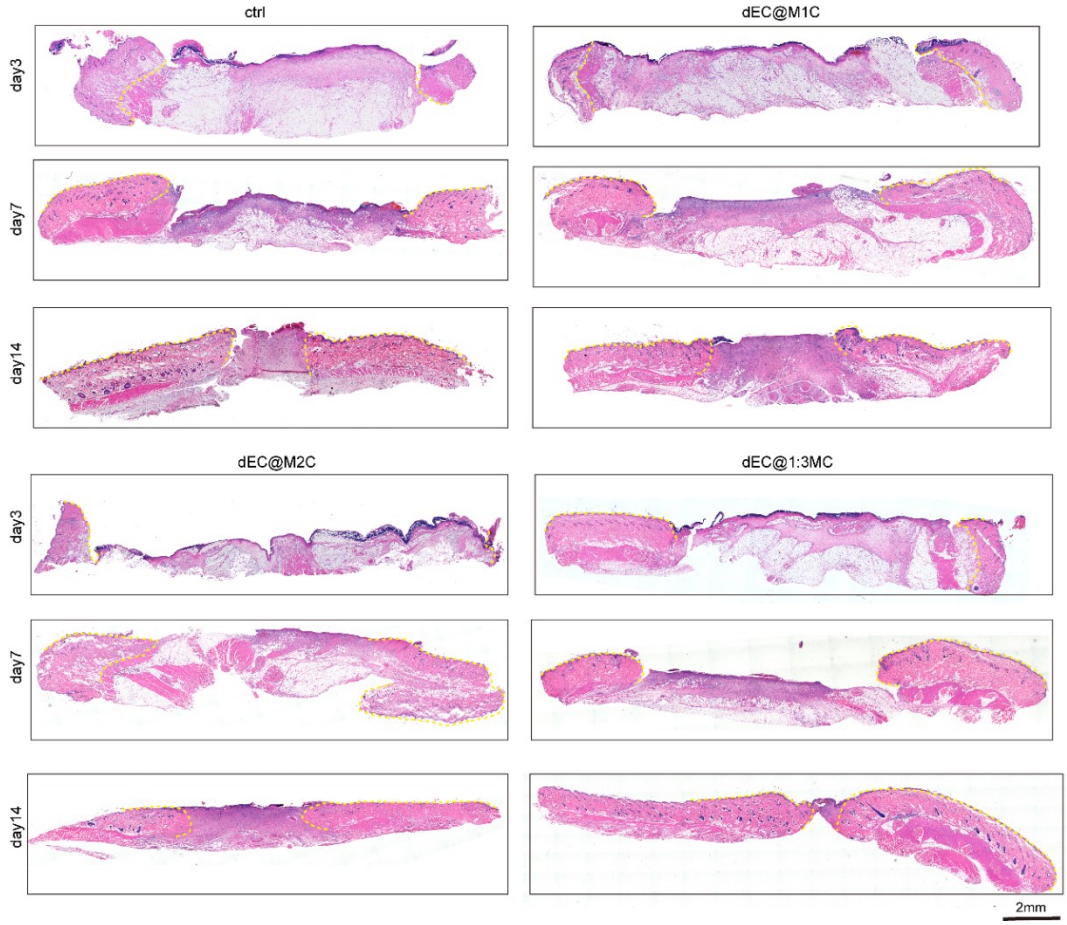

Figure S5. H&E staining of the edge of wounds at day 3, 7 and 14. Scale bars, 2 mm.

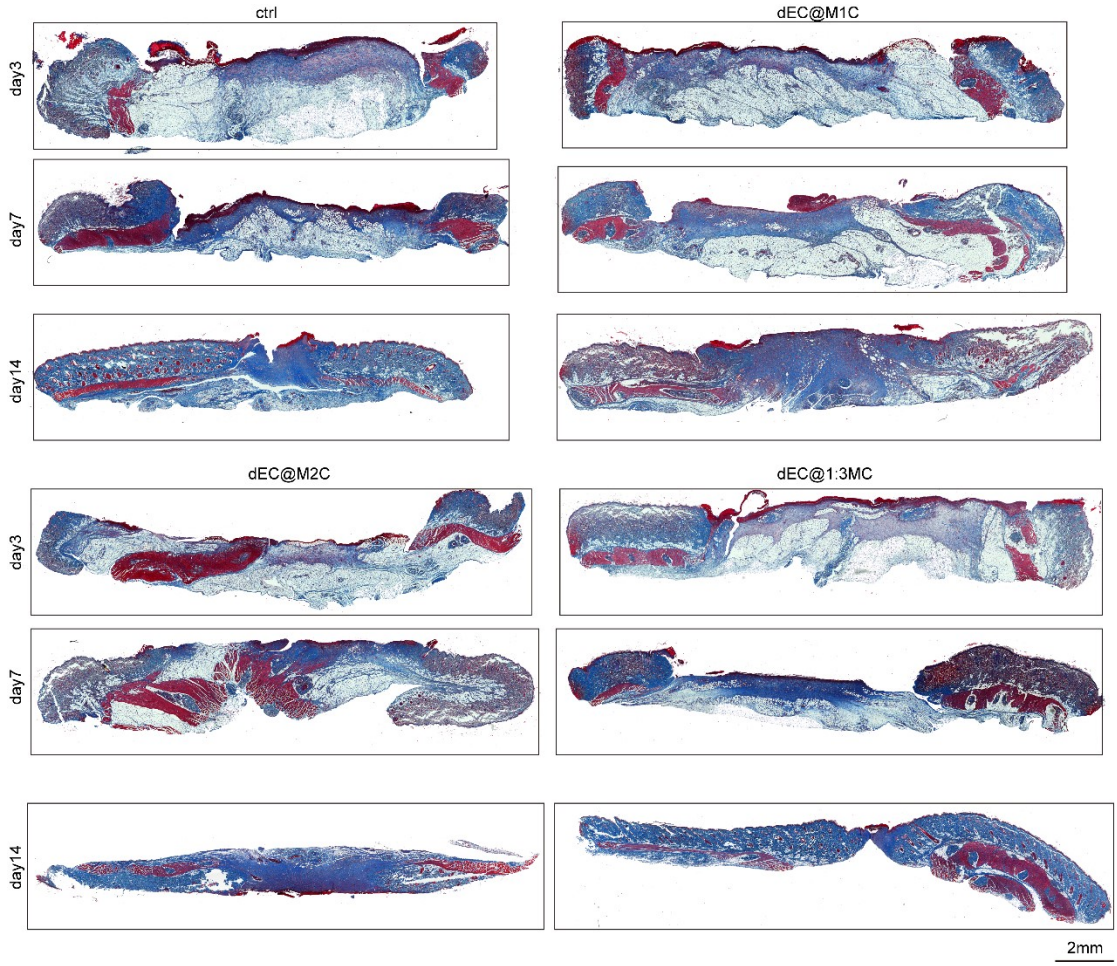

Figure S6. Masson's trichrome staining of the edge of wounds at day 3, 7 and 14. Scale bars, 2 mm.