



Supporting Information

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Virus Nanoparticles Mediated Osteogenic Differentiation of
Bone Derived Mesenchymal Stem Cells

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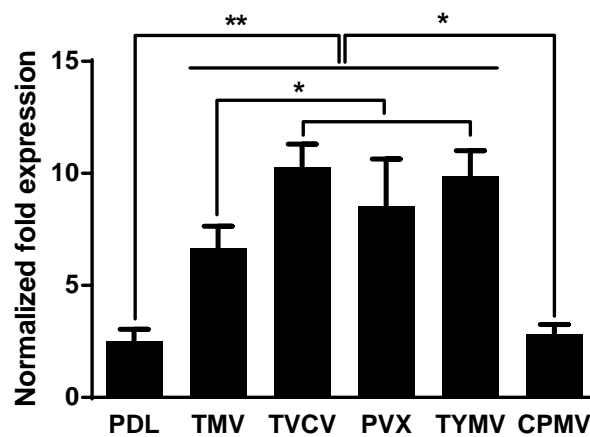


Figure S1. RT-qPCR analysis showed significant BMP2 upregulation in cells grown on TMV, TVCV, PVX, and TYMV coated substrates.

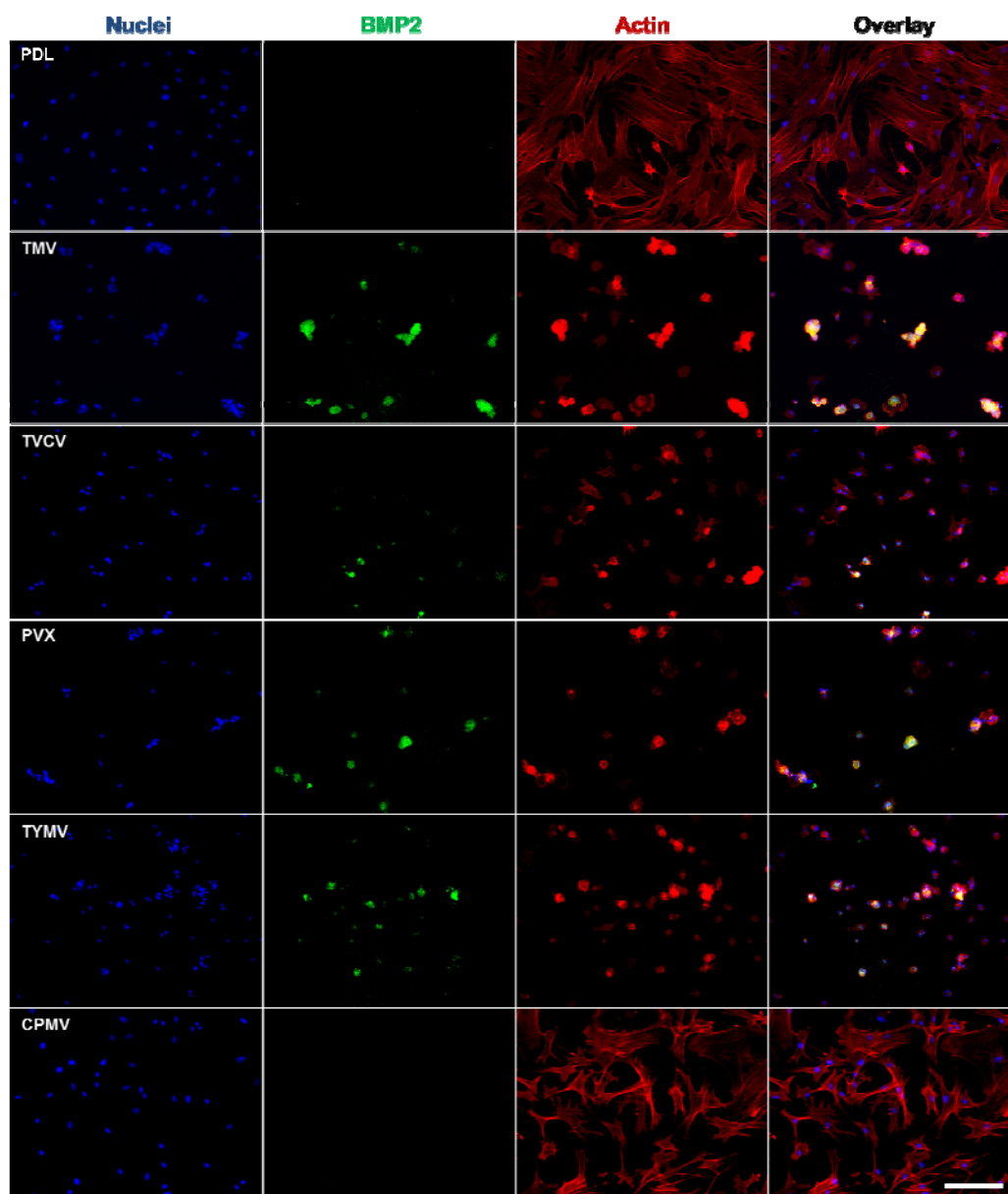


Figure S2. BMP2 immunohistochemical staining suggests the protein expressions are localized to the cell aggregates; most are found on TMV, TVCV, PVX, and TYMV substrates. Scale bar is 200 μm . Color representation: nucleus (blue), BMP2 (green), actin (red).

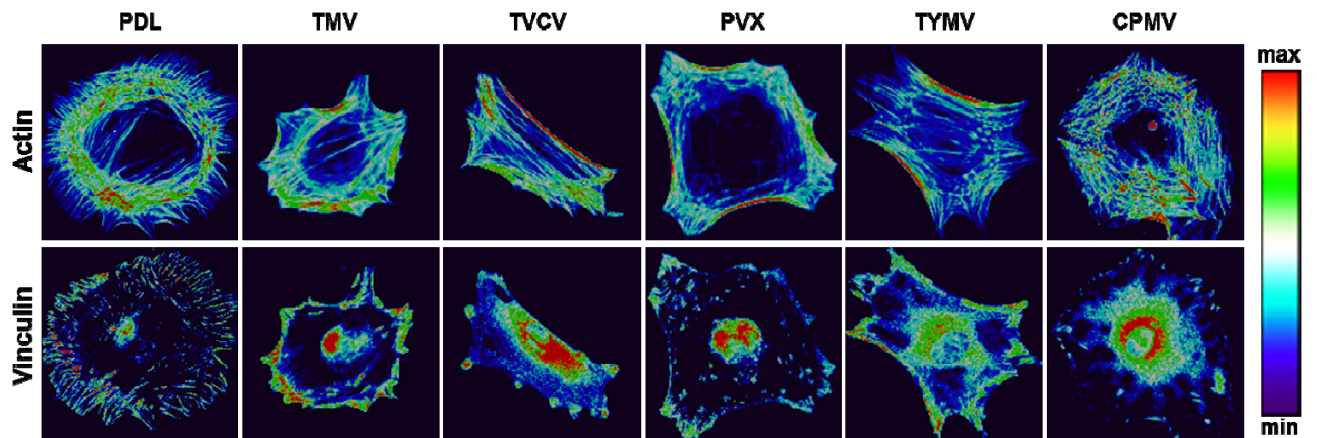


Figure S3. Representative actin (top panel) and vinculin (bottom panel) immunofluorescent heat maps of cells culture on PDL and virus coated substrates.

Table S1. Primers used for RT-qPCR to measure gene expression levels. BGLAP: bone-gamma-carboxyglutamate protein; BMP2: bone morphogenetic protein 2; SPP1: secreted phosphoprotein. 1

Gene	Sequence (5'-3')
BGLAP	Forward: AAAGCCCAGCGACTCT
	Reverse: CTAAACGGTGGTGCCATAGAT
BMP2	Forward: ACCAACCATGGGTTTGTGGTGAAGT
	Reverse: TCCGCTGTTTGTGTTTGGCTTGACG
GAPDH	Forward: ACTAAAGGGCATCCTGGGCTACACTGA
	Reverse: TGGGTGGTCCAGGGTTTCTTACTCCTT
SPP1	Forward: GACGGCCGAGGTGATAGCTT
	Reverse: CATGGCTGGTCTTCCCGTTGC