**1. Title:**

**Control of cell behaviour through nanovibrational stimulation: nanokicking**

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**4. Dataset and readme information**

**Data folders**

**Data Folder: 2D QPCR.** Following day7 of stimulation, in the bioreactor the MSCs were assessed by qRT‑PCR. PCR was quantified using the 2-∆∆Ct method and amplification was carried out using the 7500 Real Time PCR system. Unstimulated samples also cultured in a 3D collagen matrix (samples not nanokicked) were used as negative controls for comparison of osteogenic transcription expression.

MSCs were cultured in 2D cultures with or without nanokicking. RNAs were extracted and reversed transcribed to cDNA. Osteogenic markers were tested by QPCR. **Xls files of QPCR analysed data in excel used to generate Figure 3.**

**Data Folder Immunodata.** BM MSC were stimulated for 7 days and stained for adhesion and morphologic changes when compared to non-stimulated to controls. Samples were stained for actin indicating changes in the cytoskeletal contraction. Vinculin, to assess changes in cell adhesion and DAPI was stained to visualise the nuclei. 2 subfolders contain .TIF images of the stained cells. Representative images are shown in **figure 4** of the paper.

5. The date the dataset can be made publicly would be once the paper is out on publication

6. No restrictions

7. No preference

8. DOI: <http://dx.doi.org/10.5525/gla.researchdata.592>