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EFFECTS OF INTENTIONALLY TREATED WATER ON THE GROWTH OF MESENCHYMAL STEM CELLS: AN EXPLORATORY STUDY

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Background: This study investigates the idea that some forms of mind-matter interactions (MMI) may be associated with energetic properties that can influence distant living systems.

Aim: This study explored if human primary mesenchymal stem cells (MSCs), derived from two donors and cultivated in a medium made with intentionally treated water, would exhibit more growth and pluripotency than MSCs from the same source but grown in untreated (control) water.

Method: To create the treated water, three Buddhist monks directed their attention toward commercially bottled water while holding the intention that the water would enhance the growth of MSCs. Under double-blind conditions, cell culture growth mediums were prepared with the treated and untreated water, which was in turn used to grow the primary MSCs. Primary cells obtained from two donors were designated as Cells #1 and Cells #2. The prediction was that treated water would result in increased cell proliferation, that more cells would enter the cell cycle growth phase, and that there would be increased expression of genes (*NANOG*, *OCT4* and *SOX2*) associated with improved cell growth and decreased expression of genes (*p16*, *p21*, and *p53*) associated with a decline in cell growth. The improved growth hypothesis was directional, thus one-tailed *p*-values were used to evaluate the results.

Results: Proliferation averaged across Cells #1 and #2 showed overall increased growth in treated as compared to control water ($p = 0.0008$). Cells #1 and #2 considered separately had differences in the same direction but only Cells #2 showed a significant difference on day 6 ($p = 0.01$). For cell cycle, there was a significantly greater percentage of Cells #2 in the S interphase with treated vs. control water ($p = 0.04$). For the gene expression analysis, when considering the average across the two donor cells, only the *NANOG* gene expression was in the predicted direction ($p = 0.01$); by contrast, the *p16* gene expression was significantly opposite to the predicted direction ($p = 0.005$, one-tailed, post-hoc). For Cells #1 considered separately, no differences were significant except for *p16*, which resulted in an effect opposite to the predicted outcome ($p = 0.05$). For Cells #2, three genes were significantly in the predicted directions: *NANOG* ($p = 0.0008$), *OCT4* ($p = 0.005$), and *P53* ($p = 0.05$); *p16* was significantly opposite to the prediction ($p = 0.001$).

Conclusion: Intentionally treated water appeared to have some biological effects on the growth, pluripotency and senescence of human MSCs. This was especially the case in one of the two donor cells tested, but the effects were not consistently in the predicted direction. As an exploratory study, caution is warranted in interpreting these outcomes, and adjustment for multiple testing would likely reduce some of the weaker effects to nonsignificant. But given the double-blind protocol, as well as several more significant outcomes in the predicted directions, further research is warranted.

Keywords: Intention, Mind-matter interaction, Water, Stem cells, Pluripotent genes, Senescence genes, *NANOG*, *OCT4*, *p16*, *p21*, *p53*

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