# Investigating biochemical mechanisms underlying mind-matter interactions: Effect of intention on human stem cell properties via cryptochrome

## ABSTRACT:

#### Background

This study explored the mind-matter interaction by examining if human primary mesenchymal stem cells (MSCs) 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.

#### Aims & 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 & Conclusions**

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

### **Published Work:**

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