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**INVESTIGATING BIOCHEMICAL MECHANISMS UNDERLYING MIND-MATTER INTERACTIONS: EFFECT OF INTENTION ON HUMAN STEM CELL PROPERTIES WITH CRYPTOCHROME MUTATION**

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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. Cryptochrome was originally suggested as a MMI target by a 2012 paper by Shiah, the principal investigator, and if further work confirms that cryptochrome is as robust a target as our observations suggest, it could provide such a mechanism. The speculation is that cryptochrome (abbreviated CRY), a flavoprotein present in all living systems, may be a “transducer” of intention because of its quantum biological characteristics. It is suggested that just as intention appears to interact with random number generators, intention focused on CRY may trigger a cascade of biochemical reactions. In this proposal, we are exploring such possible phenomenon by using human stem cells as a study system to ask the question: Whether CRY2 plays a role in the enhancement of human stem cell properties when cells are cultured and grown in intentionally treated water.

**Aims:** We speculate that cryptochrome (abbreviated CRY), a flavoprotein found in all living creatures, might be a “transducer” of MMI. In this proposal, our aim is to determine whether CRY plays a role in enhancing the human stem cell properties when cells are grown in treated water.

**Method:** Three Buddhist monks intentionally treated water and treated water used to culture the human stem cells under double-blind conditions. We have two experimental designs. The first experimental design determines if cells cultured in the treated water show enhanced stem cell properties. The untreated water from the same sources serves as controls. We use human mesenchymal stem cells (MSCs) obtained from oral gingiva for our experiments. We will determine if cells cultured in the treated water show enhanced stem cell properties, inclusive of proliferation rate, cell cycle, stemness maintenance, and multiple differentiation potential. We are now in the process of the first experiment. The second experimental design will use genetic manipulation of stem cells to either over express (oe) CRY2 (gain-of-function) or knockout (ko) approach to delete CRY2 gene (loss-of-function) to determine if the water effect is mediated by CRY2 gene. Control cells and CRY2 oe / ko cells will be cultured in treated or non-treated water and their proliferation rate, cell cycle, stemness maintenance, senescence and multiple differentiation potential will be determined.

**Keywords:** Mind-Matter Interactions, Human Stem Cell, Intention, Cryptochrome

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