Ubisol Q-10 in Combination with Methylene Blue as a Treatment for Alzheimer’s Disease in a Transgenic Mouse Model

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Pupulin, Simon Anthony A, "Ubisol Q-10 in Combination with Methylene Blue as a Treatment for Alzheimer’s Disease in a Transgenic Mouse Model" (2016). UWill Discover Undergraduate Conference. 2.
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Introduction

Alzheimer’s disease (AD) is a progressive neurodegenerative disorder often associated with memory impairment. According to the World Health Organization, approximately 48 million people worldwide live with the disease and this number is expected to triple by 2050. As AD is a poorly understood disease, there is currently no cure for the degeneration it causes. However, some studies have shown a link between Alzheimer’s disease and oxidative stress. Elevated reactive oxygen species (ROS) are a result of inefficiency in the electron transport chain in the mitochondria and can induce premature cellular senescence. The death of these neurons can lead to the formation of neurofibrillary tangles and amyloid plaques, characteristic of the disease, in regions of the hippocampus and cerebral cortex.

Methodology

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Control Group</td>
<td>No treatment</td>
</tr>
<tr>
<td>2. Ubisol-Q&lt;sub&gt;10&lt;/sub&gt;</td>
<td>Oral-supplemented (6mg/kg/day)</td>
</tr>
<tr>
<td>3. Methylene Blue</td>
<td>Injected (4mg/kg/day)</td>
</tr>
<tr>
<td>4. Ubisol-Q&lt;sub&gt;10&lt;/sub&gt; and Methylene Blue</td>
<td>Both injection (MB) and oral-supplement (CoQ&lt;sub&gt;10&lt;/sub&gt;)</td>
</tr>
</tbody>
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Objectives: Ultimately, the goal of this study is to use a combination of both Ubisol-Q<sub>10</sub> and methylene blue to study how efficient this combination of treatments is in postponing premature cellular senescence in transgenic mouse models.

Results

- **Past Results (Ubisol-Q<sub>10</sub>)**
  - Serum levels of human amyloid-β (1-40)
  - Graph showing control, treated, and wild type groups.

- **Past Results (Methylene Blue)**
  - DHR 123 fluorescence per mg ml protein
  - Graph showing groups and their fluorescence levels.

- **Neuroprotection Results**
  - Detection of extracellular amyloid plaques using Congo Red Fluorescent dye and anti-human amyloid-β antibodies.

References