Mobile Application to Deliver Personalized Nutrition for the Prevention of Alzheimers Disease

https://neurodegenerationresearch.eu/survey/mobile-application-to-deliver-personalized-nutrition-for-the-prevention-of-alzheimers-disease/

Principal Investigators

SHEN, LI

Institution

GENBEN LIFESCIENCES CORPORATION

Contact information of lead PI
Country

USA

Title of project or programme

Mobile Application to Deliver Personalized Nutrition for the Prevention of Alzheimers Disease

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NIH (NIA)

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188507.3394

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30/09/2016

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1

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Acquired Cognitive Impairment... Aging... Alzheimer's Disease... Alzheimer's Disease including Alzheimer's Disease Related Dementias (AD/ADRD)... Brain Disorders... Dementia... Genetics... Networking and Information Technology R&D... Neurodegenerative... Neurosciences... Nutrition... Physical Activity... Prevention

Research Abstract
Genben Lifesciences (dba GB HealthWatch) is a digital health and nutritional genomics

company. Our mission is to help fight common, diet- and lifestyle-related chronic diseases with precision nutrition and advanced mobile technologies. Our company developed the HealthWatch 360 mobile app for tracking dietary intake, physical activity and health-related symptoms. This mobile app has received excellent reviews for both the iOS and Android platforms and has over 70,000 registered users. Health condition- specific goals featured in the app provide refined nutritional recommendations based on clinical guidelines for the prevention of diet-induced, chronic diseases. Alzheimer's disease (AD) is the leading cause of dementia in the U.S., the 6th leading cause of mortality and a major cost to the nation, families and caregivers. This phase I proposal is for the development of a mobile tool that will deliver personalized nutrition and meal plans based on genetic risk in order to mitigate AD risk. Aim 1: Develop a systematic process to identify specific dietary and nutritional components associated with AD. Using the 1000 Genomes Phase 3 database and nutritional analyses of the traditional diets that correspond with the 26 populations, we will analyze whether specific nutrients correlate with the frequency of genetic variants that predispose risk of AD. We hypothesize that a population's fitness would be enhanced and AD risk would be lower when the genetic variants that are selected for in a given population are in equilibrium with a diet that is enriched or depleted with the correlated nutrient(s). We will develop statistical models that will quantify these relationships. Aim 2: Translate nutritional patterns to a set of quantitative recommendations for AD prevention. With the nutrient data we obtain from Aim 1, combined with other evidence-based nutrition guidelines for AD, we will synthesize a set of qualitative and quantitative nutritional "rules" based on the app user's genotypes, family history of AD and other health conditions. These genotype- and/or phenotype – specific rules will estimate ideal ranges for a given nutrient and amend the conventional "rules" (i.e. nutritional recommendations) by the 2015-2020 Dietary Guidelines for America. Aim 3: Mobile app for delivery of personalized meal plan for the prevention of AD. This mobile application is designed for guided, proactive and self-executed prevention of AD, and targeted at those who are at elevated risk. We propose developing machine-learning algorithms to create meal plans that employ the modified nutrient ranges (from Aims 1 and 2) for a given AD risk genotype. Users will be able to modify food preference parameters (for example, "vegetarian") while maintaining the appropriate nutrient ranges. A key outcome of this project will be a platform that supports population-wide dietary intervention by seamlessly connecting preventive healthcare with daily life in the digital age.

Further information available at:

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Investments < €500k

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United States of America

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2016

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N/A

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