

P-22 Computer generated degenerative brain (DBrain) solution for people with memory loss and related impairments

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People with dementia brain (DBrain) have acquired global impairments of the intellect, memory and personality. In Malaysia alone there are estimated 100,000 sufferers of dementia. Presently about 26.6 million people worldwide have dementia related diseases. By 2020, this is expected to rise to 34 million and 104 million by 2050.. The development of computer generated DBrain solution of pseudo-codes with expressions of natural gene sequences aims to explore other dementia-related novel genes and overcome the ethical and data protection issues. The invention is the computer creation of artificial gene or pseudo-gene codes through a completed fundamental research funded by MOHE under FRGS 2007-2008. The invention is based on the phenomenon of recursive inter-molecular energy jumps between nucleotides. The molecular -mechanism approach attempts to represent the process of brain receptor proteins inhibiting neural transmission which may unravel decades of brain degeneration puzzles. The idea is to discover the novel receptor genes in the brain mitochondria that are responsible for modulating the inhibiting functions of a class of receptor proteins. Groups of the computer generated pseudo-gene sequences are found to have high fitness ratios of the natural gene motifs of animal and a human GABAR dementia related gene sequence. Patent for DBrain solution was filed in July 2009. The invention is being pre-commercialized by a local Industrial partner, Niche Frontiere a manufacturer of service robots through a MOSTI funded collaborative technofund project for the period 2009-2011. In this project more pseudo-gene sequences with high fitness ratios of natural DNA motifs will be generated by high speed computing grid of MIMOS-UTP and used by Niche-Frontiere's diagnostic, therapeutic and treatment multi-agents for dementia people at the clinical and firm levels. Through this collaborative pre-commercialization project, the pseudo-gene sequences are also used by laboratories in USM and UTM to discover novel herbal drugs and inhibitor receptor proteins as on-line databases for the service robots.

P-25 Lightweight TDMA Protocol for Wireless Vehicular Communications

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Wireless vehicular communications (WVC) has been identified as a key technology for intelligent transportation systems (ITS) for a few years ago. IEEE 802.11p (WAVE: wireless access in vehicular environments) is the proposed standard for physical and MAC layer of WVC devices. The standard is extended from 802.11 protocols. The main objectives of the standard are to change the frame format and increase delay spread tolerance introduced by vehicle mobility, in which the channel bandwidth is scaled from 20 MHz in 802.11a to 10 MHz in 802.11p. However, to ensure interoperability between vehicles communicate in rapidly changing environment where a packet transmission should be completed in short time-frame is a problematic issue. This poster proposes WiFi-based TDMA technique with flexible time slots and guard bands to tackle this problem. The new TDMA sublayer is compatible with the 802.11p standard to ensure the feasibility of adoption by any vendor. The simulation results present the performance analysis and validate the efficiency of the proposed method.