

Central auditory Perception Disorder (CAPD) in neurodevelopmental Deficit

Sajad Haghshenas

Institute of cognitive science studying, Iran

Abstract

As pharmaceutical companies have largely exited neuroscience drug development, longer life spans have resulted in an increased economic and healthcare burden of central nervous system disorders resulting in a substantial need for innovation in neuroscience drug development. Natural products play important roles in ecology, biotechnology and biomedicine, with an estimated 60-70% of active compounds in clinical pharmaceutical formulations derived from or inspired by natural products. The marine environment is an extraordinarily rich source of species diversity, and marine organisms display vast chemical and biological diversity. Adaptation to their unique habitat contributes to marine organisms producing a wide variety of biologically active primary and secondary metabolites. Although major pharmaceutical companies have largely ceased exploring marine natural products following the development of large synthetic compound libraries, marine natural products continue to have a higher success rate than other sources of drug leads. In this study, we screen marine natural products for neuroactivity in murine primary cortical cultures, using a high-throughput FLIPR screening for modulation of calcium channels using Fluo8-AM indicator dye for detection. Additionally, we screen for potassium channel modulation using FMP blue indicator dye. Finally, in neuroactive drugs, we screen for neurite outgrowth and/or neurotoxicity using live-dead assays. Together, these data identify neuroactive compounds which can then be semi-synthetically modified to expand compound libraries for neuroscience drug development. In addition to our laboratory work, we curate an up-to-date Global Marine Pharmaceuticals Pipeline <https://www.marinepharmacology.org/> to track marine drugs through the clinical and preclinical pipeline.

Biography:

Most traditional APD tests require a child to be at least 7 years old. So, many kids aren't diagnosed until first grade or later. Newer electrophysiology tests (which use noninvasive electrodes to check the body's response to speech) can give some early information about the central auditory system in kids younger than 7.

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Citation: Sajad Haghshenas, Central auditory Perception Disorder (CAPD) in neurodevelopmental Deficit; *Psychiatry* 2021; April 30, 2021; London, UK