AAO Foundation Final Report Form

Type of Award:

Research Aid Award

Name(s) of Principal Investigator(s):

Laura Bowden

Title of Project:

Mapping Towards a Cure – Identification of Neurophysiologic Signatures of Trigeminal Neuralgia Pain, Operant behavioral instrument for measuring trigeminal neuropathic pain in rodents

Period of AAOF Support: July 1, 2016, to June 30, 2017

Amount of Funding: $4,995.00

Summary/Abstract:

Background: Despite the investment of immense resources, pain specifically orofacial pain remains a significant societal issue in terms of costs and suffering. Given this, there has been an increased effort toward the development of novel pain-relieving therapies. Purpose: To investigate the effects of cocoa on orofacial pain and the use of behavioral assays and animal modeling for the preclinical stages of analgesic development. Research Design: Male and female hairless rats (N=20/group) were tested. Rats were operant pain tested using the Orofacial Pain Assessment Device (OPAD) before and after changing their food from the standard ACS (Animal Care Services) diet to a cocoa-enriched or control-equivalent diet. Results: There was a significant increase (*P<0.05) in the pain ratio (an indication of pain-relief) for the cocoa treated animals. Rats fed the cocoa diet had statistically significantly less pain as compared to the animals fed the control diet. Capsaicin-induced hyperalgesia was inhibited and we observed that the females were more sensitive to both thermal and capsaicin stimuli. Capsaicin inflammation produced a significant decrease in this pain ratio for the control-diet animals (P = 0.001). Conclusion: Using the OPAD operant system, we demonstrated that a diet rich in cocoa was effective in inhibiting neurogenic-inflammatory pain in rats. This has implications for the use of novel alternative therapies such as diet modification for the control of pain.

Were the original, specific aims of the proposal realized? Yes

Were the results published? Accepted for publication

Bowden LN, Rohrs E, Omoto K, Durham P, Holliday LS, Morris AD, Allen K, Caudle RM, Neubert JK. Effects of cocoa-enriched diet on orofacial pain in a murine model. Orthodontics & Craniofacial Research. Article DOI: 10.1111/ocr.12149

Was AAOF support acknowledged? Yes

Have the results of this proposal been presented? Yes, presented as “Effects of cocoa-enriched diet on orofacial pain in a murine model” by Laura Bowden, J Neubert

AAO 2017 E-Poster

2017 Spring Synergy - University of Florida College of Dentistry poster presentation

2016 FAO (Florida Association of Orthodontics) poster presentation

During my residency, here at the University of Florida I have had the privilege of training under nationally renowned professors and be involved in cutting-edge research which would not have been possible without the support of the AAOF.