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neurotoxicity aimed at a comprehension of the molecular processes underlying amyloid–associated dementias. This work was supported by the Alzheimer's Association (IIRG 11–205127)

NS-P06
INFLUENCE OF β-AMYLOID ASSEMBLY ON SYNAPTOSOMAL STRUCTURE AND 2-ARACHIDONOYLGLYCEROL METABOLISM

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Among the multiple functions of 2-arachidonoylglycerol (2-AG) in the central nervous system, we can highlight its role as neuroprotective molecule. We have previously demonstrated a deregulation in 2-AG hydrolysis in an *in vitro* model of Alzheimer´s disease (AD), in rat cerebral cortex synaptosomes (Syn). The aim of the present study was to analyze the effect of βA oligomers (mimicking early AD stage) and fibrils (mimicking late AD stage) in Syn, and also to evaluate 2-AG synthesis by diacylglycerol lipase (DAGL) and lysophosphatidate phosphohydrolase (LPAase) in these AD models. Syn were isolated by differential centrifugation, purified in ficoll gradients, and incubated with different βA peptide conformations. LPAase and DAGL activities were assayed using radiolabeled substrates. We observed that βA oligomers disrupted synaptosomal membranes while fibrils not only caused synaptosome aggregation but also showed membrane damage probably exerted by oligomeric like structures. Also, similarly to 2-AG hydrolysis, its synthesis is differentially modulated in early and late AD stages. Whereas oligomers decreased DAGL activity, fibrils increased both LPAase and DAGL activities. Our results show important differences in early and late AD stages in 2-AG metabolism that could be partially responsible for the neurodegeneration observed in this pathology.

NS-P07
PERINATAL STRESS MODIFIES THE EXPRESSION OF CLOCK GENES

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Circadian systems express biological rhythms that display an entrainable oscillation of about 24 h. It is set by the intrinsic transcriptional activity of a group of genes called clock genes which are rhythmically expressed in the brain, at the suprachiasmatic nucleus (SCN) of the hypothalamus and peripheral tissues like lung and liver. At the cellular level, these rhythms are controlled by transcriptional feedback loops that produce oscillations in gene expression. We asked whether adverse experiences like perinatal malnutrition affect the expression of clock genes leading changes in circadian regulation in mice.
CF1 dams were fed a normal protein diet (NP) with 20% of protein or low protein diet (LP) with 8% of protein during pregnancy and lactation, and the male offspring was analyzed. We hypothesize that perinatal malnourished may also modulate the SCN activity in mice. We observed that *Bmal1*, *Per1* and *Per2* expression, oscillating genes in SCN, were phase delayed (NP vs LP). Moreover, *Creb1*, a key gene in cognition and memory was also delayed. Therefore, these results imply that the effects of fetal environment on adult health would include alterations in the function of the systems governing the control and regulation of circadian rhythms in behavior and metabolism. These findings show that perinatal stress like protein restriction has an important role on regulation of gen expression of the clock system.

NS-P08
NEURONAL MODULATION OF STRESS RESPONSE IN *Caenorhabditis elegans*

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In response to environmental challenges isolated cultured cells can autonomously trigger widely conserved molecular mechanisms to minimize cellular damages. However, this intrinsic capacity should be finely regulated in multicellular organisms. The neural coordination of the systemic stress response was first demonstrated in *C.elegans*. However, the identity of the signal that integrates stress perception with the response in non-neuronal cells is unknown. Our analysis of the *C.elegans* neuronal wiring diagram reveals that the circuits activated upon exposure to stressors converge in the tyraminergic neuron, RIM. Tyramine is the invertebrate counterpart for adrenaline. By using genetics, pharmacology, behavioral analysis and microscopic techniques, we found that tyramine-deficient animals are resistant to thermal and oxidative stress as well as to starvation and pathogen infection. Besides, these mutants