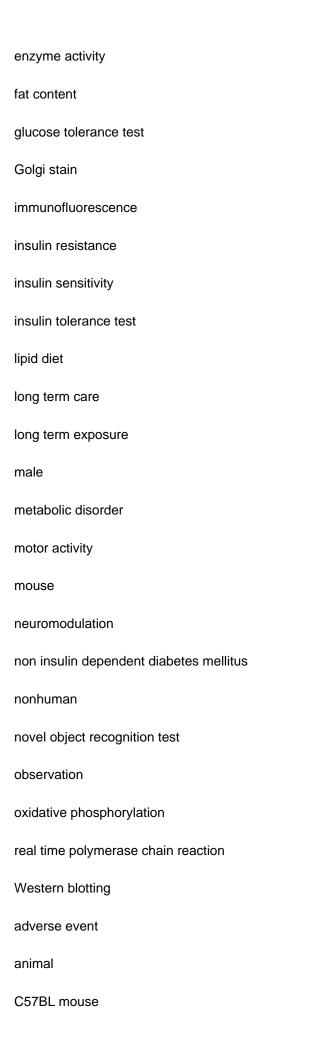
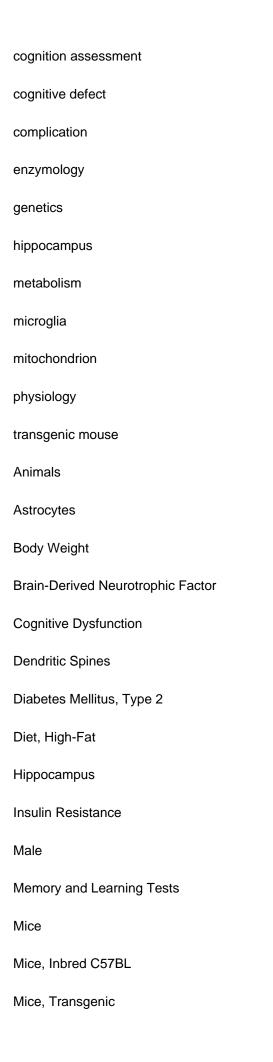
c-Jun N-terminal Kinase 1 ablation protects against metabolic-induced hippocampal cognitive impairments

Busquets O.	
Ettcheto M.	
Eritja À.	
Espinosa-Jiménez T.	
Verdaguer E.	
Olloquequi J.	
Beas-Zarate C.	
Castro-Torres R.D.	
Casadesús G.	
Auladell C.	
Bulló M.	
Folch J.	
Camins A.	

Abstract: The development of metabolic alterations like insulin resistance has been associated with dysfunctions in mitochondrial oxidative capacity, induction of neuroinflammatory responses, and the appearance of cognitive impairments in the brain. The c-Jun N-terminal Kinase 1 (JNK1) is a potential key modulator of these mechanisms. The current study identifies a protective effect of whole-body JNK1 knockout in the presence of a high-fat diet (HFD). Specifically, the data suggest that mice missing JNK1 show increased insulin sensitivity and mitochondrial activity, as well as reduced body weight, and astrocyte and microglial reactivity. Finally, these animals are also protected against HFD-induced cognitive impairments as assessed through novel object recognition test, the observation of dendritic spines, and the levels of BDNF or other proteins like spinophilin and ARC. Thus, modulation of JNK1 activity seems like a promising approach for the design of therapies aimed at treating metabolic-induced cognitive impairments. Key messages: JNK1 is a link

between obesity/type 2 diabetes and cognitive lossInhibition of JNK1 is neuroprotectiveJNK1 constitutes a therapeutic strategy for cognitive loss. © 2019, Springer-Verlag GmbH Germany, part of Springer Nature. c-Jun N-terminal Kinase 1 Cognitive impairments High-fat diet brain derived neurotrophic factor citrate synthase spinophilin stress activated protein kinase 1 actin binding protein brain derived neurotrophic factor nerve protein neurabin stress activated protein kinase 1 animal experiment animal model antioxidant activity Article astrocyte body weight cognitive defect comparative study controlled study dendritic spine disease association





Microfilament Proteins
Microglia

Mitochondria

Mitogen-Activated Protein Kinase 8

Nerve Tissue Proteins