Latin American Journal of Pharmacy
(formerly *Acta Farmacéutica Bonaerense)*
Lat. Am. J. Pharm. **40** (special issue): 141-6 (April 2021)

Article presented at the International
Scientific Conference of Alkafeel
University (ISCKU), Iraq

Nociceptin Counteracts the Effects of Lipopolysaccharide and Peptidoglycan in C6 Rat Astrocytes

Salim Kadhim[1,2], Saif AL AQBI[3], John MCDONALD[2] & David LAMBERT[2]

[1] *University Alkafeel, College of Pharmacy, Iraq*
[2] *University of Leicester, Department of Cardiovascular Sciences, UK*
[3] *University of Kufa/Faculty of Veterinary Medicine, Iraq*

***SUMMARY*. Glial cells represent the main constituent of the brain tissues. Their response to infection and inflammation has been a growing research topic. C6 rat glioma cells were treated with lipopolysaccharide (LPS) and peptidoglycan (PEPG) with/without nociceptin/orphanin FQ. We found that treatment with both lipopolysaccharide and peptidoglycan resulted in decreased production of cyclin D1 and cyclin D3, increased production of glial fibrillar acidic protein (GFAP) and increased calcium mobilization. However, when cells treated with nociceptin, all these three effects were reversed. It can be concluded that Nociceptin can modulate cellular and molecular events associated with lipopolysaccharide and peptidoglycan.**

RESUMEN. Las células gliales representan el componente principal de los tejidos cerebrales. Su respuesta a la infección y la inflamación ha sido un tema de investigación creciente. Se trataron células de glioma de rata C6 con lipopolisacárido (LPS) y peptidoglicano (PEPG) con / sin nociceptina/orfanina FQ. Encontramos que el tratamiento con lipopolisacárido y peptidoglicano resultó en una disminución de la producción de ciclina D1 y ciclina D3, aumento de la producción de proteína ácida fibrilar glial (GFAP) y aumento de la movilización de calcio. Sin embargo, cuando las células se trataron con nociceptina, estos tres efectos se invirtieron. Se puede concluir que la Nociceptina puede modular los eventos celulares y moleculares asociados con el lipopolisacárido y el peptidoglicano.

KEY WORDS: astrocytes, calcium, cyclinD1, cyclin D3, GFAP, lipopolysaccharide, nociceptin, peptidoglycan.

* Author to whom correspondence should be addressed. *E-mail:* sfk8@leicester.ac.uk

ISSN 0326 2383 (printed ed.)
ISSN 2362-3853 (on line ed.)