

## INHIBITION OF THE MITOGEN ACTIVATED PROTEIN KINASE (MAPK) IN THE INFLAMMATORY PAIN LIKE STATE USING SB 203580 AND PD 98059 IN MICE

### Abstrak :

*The therapeutic management of pain related inflammation is difficult to handle. The inflammatory process is mediated through the mitogen-activated protein kinase (MAPK) signal transduction pathway. Inhibition of this signal with specific inhibitors of p38 and Erk 1/2 MAPK pathway i.e. SB 203580 and PD 98059 has been reported. This study was aimed to assess the effectiveness of those specific inhibitors for inflammatory pain management in Balb-c mice. Inflammatory model was developed by intraplantar injection of Complete Freund's Adjuvant (CFA). PD 98059 and SB 203580 were dissolved in 30% DMSO to acquire concentration of 10.0 nmol, then was diluted to obtain doses of 0.1; 1.0 and 5.0 nmol. The intrathecally administered of SB 203580 and PD 98059 was injected once a day for 7 consecutive days at dose of 0.1, 1.0 and 5.0 nmol that was started from day 7 to day 13 after CFA injection. The control group received 10  $\mu$ l 30% DMSO. Hyperalgesia was measured on day 0,1,3,5,7,8,10,12, and 14 following CFA injection. At dose of 5.0 nmol, PD 98059 increased mice's latency time to heat stimulation compared with placebo ( $F(3.26)=6.881$ ;  $p=0.001$ ). Also, SB 203580 at dose of 0.1, 1.0 and 5.0 showed similar results compared with placebo ( $F(3.25)=4.394$ ;  $p=0.002$ ,  $p=0.001$  and  $p=0.039$  for doses 0.1, 1.0 and 5.0 nmol respectively).*

*MAPK inhibitors such as PD 98059 and SB 203580 can decrease hyperalgesia which is shown by increasing response time toward heat stimuli, so that MAPK inhibitors could have a place of therapy in the inflammatory pain like state due to its effectiveness in decreasing hyperalgesia.*

### Keyword :

*Inflammatory pain, mitogen activated protein kinase, PD 98059, SB 203580, chronic pain*

### Daftar Pustaka :

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