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Data Article

Data supporting the understanding of modulatory function of opioid analgesics in mouse macrophage activity

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ABSTRACT

The data presented herein expand the current understanding of the modulatory function of opioid drugs in mouse macrophage activity described in our relevant research article (Filipczak-Bryniarska et al., 2017) [1], in which we characterize the influence of morphine, buprenorphine and oxycodone on humoral and cell-mediated immune response in mice. Among other things, we have shown the effects of treatment with assayed analgesics on macrophage ability to induce antigen-specific B-cell response to sheep red blood cells as well as to generate reactive oxygen intermediates and nitric oxide. The current data demonstrate the effects of morphine, buprenorphine or oxycodone administration on phagocytosis of sheep red blood cells and zymosan by mouse macrophages, supplementing the data on immune modulatory capacities of assayed drugs, recently reported by us (Filipczak-Bryniarska et al., 2017; Kozlowski et al., 2017) [1,2].

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Specifications Table

Subject area	Immunology
More specific subject area	Immunopharmacology
Type of data	Figure
How data was acquired	Using flow cytometry on FACS Calibur with BD CellQuest Pro software (BD Bioscience, San Jose, CA, USA)
Data format	Analyzed
Experimental factors	– Treatment of mouse donors of macrophages with proper opioid drug – Injection of mineral oil for induction of macrophage-enriched peritoneal exudate – Collection of macrophages for in vitro incubation with either FITC-coupled sheep red blood cells or zymosan-green – Cytometric analysis of macrophages
Experimental features	– Mouse donors of macrophages were treated for 7 consecutive days with one of tested opioid drugs – Macrophage-enriched peritoneal exudate was induced by mineral oil injection on 2nd day of drug treatment – Yielded macrophages were incubated with either ex tempore FITC-coupled sheep red blood cells or commercially available zymosan-green – Macrophages were analyzed cytometrically for the intensity of green fluorescence emitted
Data source location	Department of Immunology, Jagiellonian University Medical College, Krakow, Poland
Data accessibility	Data is within this article

Value of the data

- The data presented here demonstrate the effects of morphine, buprenorphine or oxycodone administration on phagocytosis of either FITC-coupled sheep red blood cells or zymosan-green by mouse macrophages.
- While zymosan-green reagent is commercially available, we have elaborated another, original phagocytosis assay with the use of FITC-coupled sheep red blood cells, prepared by us *ex tempore*.
- The opioid analgesics were administered *in vivo* prior to macrophage harvest, which enables to evaluate their influence on immune cells taking into account the pharmacodynamics, tissue distribution and metabolism of tested drugs in living organism.

1. Data

The percentage of macrophages from mice treated with different opioid drugs emitting green fluorescence after incubation with fluorescein isothiocyanate (FITC)-coupled sheep red blood cells (Fig. 1, upper left graph) or with zymosan-green reagent (Fig. 1, upper right graph), and the geometric mean of emitted green fluorescence by these macrophages incubated with FITC-coupled sheep red blood cells (Fig. 1, lower left graph) or with zymosan-green reagent (Fig. 1, lower right graph). In addition, macrophage populations were divided into cells expressing high ($FITC^{high}$, grey bars) or low ($FITC^{low}$, black bars) green fluorescence emission. The raw data are included in supplementary table.