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Data Article

Dataset on the changes of neutrophils treated with retinoic acid



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ABSTRACT

The data presented in this article are related to the research article entitled “Retinoic acid induces hypersegmentation and enhances cytotoxicity of neutrophils against cancer cells” (S. Shrestha, S.Y. Kim, Y.J. Young, J.K. Kim, J.M. Lee, M. Shin, D.K. Song, C.W. Hong, 2017) [1]. This article complements the potential of retinoic acid to induce changes in effector function of human neutrophils. Here the datasets describe the rate of apoptosis, changes in numbers of nuclear lobes, and the expressions of surface markers in human neutrophils in presence or absence of retinoic acid. The tumor growth in recipient mice with adoptive transfer of retinoic acid-treated neutrophils was evaluated. The included data is made publicly available to criticism and extended analysis.

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Specifications Table

Subject area	<i>Biology</i>
More specific sub- ject area	<i>Immunology, Innate immunity, tumor immunology</i>
Type of data	<i>Text and figures</i>
How data was acquired	<i>Neutrophils were isolated from either healthy volunteer or bone marrow of mice and stimulated with retinoic acid. The changes were analyzed using FACS (BD FACS Calibur), Microscopic image (Nikon Eclipse Ti-E), and measurement of in vivo tumor growth</i>
Data format	<i>Analyzed</i>
Experimental factors	<i>Neutrophils were exposed to retinoic acid</i>
Experimental features	<i>Apoptosis, nuclear segmentation, and surface marker expressions of neutrophils were determined. Tumor growth in recipient mice was examined.</i>
Data source location	<i>Kyungpook National University, Daegu, Republic of Korea,</i>
Data accessibility	<i>Data are presented in this article</i>

Value of the data

- The data highlights the changes in the function of human neutrophils after treatment with retinoic acid.
- The data can be useful to compare the rate of apoptosis in neutrophils induced by retinoic acid.
- The data shows changes in the nuclear morphology and surface expression markers induced by retinoic acid treatment and the effect of adoptive transfer of retinoic-acid-treated donor neutrophils on tumor growth in recipient mouse.
- The data can be useful for other researchers investigating the effects of retinoic acid on neutrophils.

1. Data

The data includes information regarding the effect of retinoic acid on neutrophils complementing the previous study [1]. The apoptosis rates of neutrophils exposed to either retinoic acid (100 nM) or vehicle were examined using annexin V/propidium iodide (PI) fluorescence-activated cell sorting (FACS) staining (Fig. 1). The percentages of living (annexin V⁻/PI⁻ cells, Fig. 1A), apoptotic (annexin V⁺/PI⁻ cells, Fig. 1B), and necrotic (annexin V⁺/PI⁺ cells, Fig. 1C) neutrophils were described. Next, the mean lobe counts of retinoic acid-treated neutrophils were examined using hemacolor

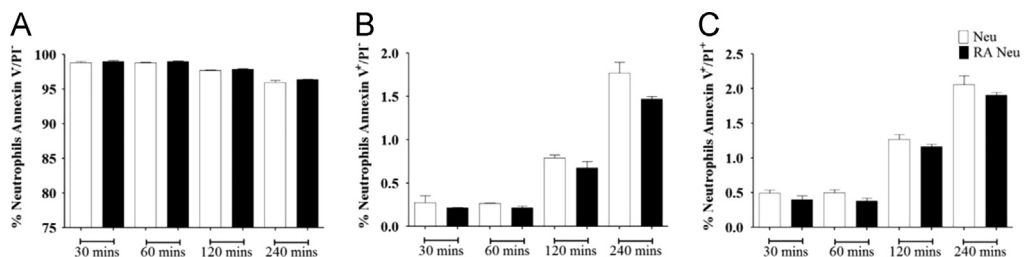


Fig. 1. Effect of retinoic acid on apoptosis of neutrophils. Neutrophils (1×10^6 cells/ml) exposed to retinoic acid (100 nM) for indicated the time and neutrophil survival was examined by annexin V/propidium iodide (PI) staining. Apoptosis (annexin V-positive only) and necrosis (double positive for annexin-V and PI) rates in neutrophils. (A) The percentage of live neutrophils (annexin V-PI double negative), (B) The percentage of apoptotic neutrophils (annexin V-positive only), (C) The percentage of necrotic cells (annexin V-PI double positive). All results are shown as means \pm SEMs ($n=2$).

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