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Electrolyzed Reduced Water Induces Differentiation in K-562 Human Leukemia Cells

[Takaaki Komatsu](#), [Yosinori Katakura](#), [Kiichiro Teruya](#), [Kazumichi Otsubo](#), [Shinkatsu Morisawa](#) & [Sanetaka Shirahata](#)

Conference paper

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Abstract

Electrolyzed reduced water (ERW) is known to scavenge reactive oxygen species (ROS) which is related to malignant tumor phenotypes. We attempted to clarify the effect of ERW on tumor phenotypes of K562 human leukemia cells. Treatment

of K562 cells with ERW resulted in growth arrest, morphological changes, and expression of CD41, a cell marker of megakaryocyte differentiation. However, the morphology of N-acetylcysteine (NAC)-treated cells was rather similar to that of non-treated control K562 cells. These results suggested that ERW, but not NAC can differentiate K562 cells into megakaryocytes. The induction of megakaryocytes from K562 cells by ERW was preceded by a rapid rise in the activity of MEK (MAP kinase /extra-cellular regulated kinases) that leads to sustained activation of ERK (extra-cellular regulated kinases; MAPK). However, In NAC-treated K562 cells, ERK activation was only transient. The different persistency of ERK activation induced by ERW and NAC might affect the cell fate.

Keywords

K562 Cell Cell Cycle Distribution

Intracellular Reactive Oxygen Species Level

Methyl Sulfonyl Fluoride

Megakaryocytic Differentiation

These keywords were added by machine and not by the authors. This process is experimental and the keywords may be updated as the learning algorithm improves.

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Author information

Authors and Affiliations

**Graduate School of Genetic Resources
Technology, Kyushu University, Fukuoka, 812-
8581, Japan**

Takaaki Komatsu, Yosinori Katakura, Kiichiro
Teruya & Sanetaka Shirahata

**Nihon Trim Co. Ltd., 1-8-34 Oyodonaka, Kita-ku,
Osaka, 531-0076, Japan**

Kazumichi Otsubo & Shinkatsu Morisawa
Editor information

Editors and Affiliations

**Department of Applied Biological Science, Tokyo
Noko University, Tokyo, Japan**

Kazumi Yagasaki, Yutaka Miura, Makoto
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