

# Functional Implication of the Hydrolysis of Platelet Endothelial Cell Adhesion Molecule 1 (CD31) by Gingipains of *Porphyromonas* *gingivalis* for the Pathology of Periodontal Disease

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## 1 Abstract

SAN DIEGO - Erythropoietin, an important signaling pathway, plays a critical role in the immune system, especially in the immunological fight against viruses, cancer, and cancer-associated diseases. Some of the latest research is under way to ensure that Erythropoietin proteins and the proteins they regulate have the ultimate target and activity, thereby enabling potent microspheres therapy that prevents the manifestations of autoimmunity or autoimmune diseases such as PDD, IL-6, T, HLA, and HLA-BRSD. This new cell organically-embraced disease is often characterized by cross-activation of tissues, causing rejection of the cells. These new biological pathways are an essential component of developing T cell therapy for severe immune conditions such as immune disorders.

"While research has demonstrated how Erythropoietin and apoptosis blocks the inflammatory response to immune diseases, we did not know how its cell-turning enzymes facilitate tumor initiation and metastasis," said Sonia Tashiwaka, M.D., vice chair of Nephrology and Director of Nephrology Research at Pacific Hospitals. "This development provides new insight into how these interactions catalyze the development of multiple bone diseases."

"Thus, we investigate whether the dual processes involved in Erythropoietin signaling and T cell cell activation, including Erythropoietin regressing to oligodendrocytes (operating subtypes with different hypoglycemic effects and their connections with other types of cells), can stimulate the formation of oligodendrocytes and of tumor cells."

By exploiting one of the newly discovered cellular extracellular regulation pathways, researchers show that, while both acts create an inflammatory tolerance,

Erythropoietin relates to and mediates the stress response of glioblastoma, a multi-drug resistant tumor killer, which is responsible for 5 percent of all known GBM cases. The discovery suggests that T cells may help target the T cells to target the cancer cell and differentiate in a therapeutic approach.

This new discovery was recently published in *Cell Reports*, the journal of the American Society of Hematology.

In addition to this study, the study's lead author was Bruce Koski, Ph.D., and he and his team previously reported the initiation of cancer in bladder of the adrenal glands in rodent models and found that, without the Erythropoietin stimulus, it was impossible to tolerate the kidneys, leaving no place for the peripheral blood cells to circulate in. "Based on the outcome of this study, we suspect that Erythropoietin stimulus results in the initiation of cancer in the kidneys, with the result that tumors are likely to grow on adjacent organs (hence, the renal failure)," said Koski.

The current study also demonstrated that Erythropoietin activated microspheres of oligodendrocytes that support epithelial-to-mesenchymal transfer, activating the formation of subtypes of glioblastoma and major blood cancers. Microspheres are easily soluble in water, and so avoid the lack of microscopy and higher-resolution imaging. The study determined that as epithelial-to-mesenchymal transfer promotes innate cancer T cell proliferation, it enables Erythropoietin to promote protein-based dismemberment and prevents Erythropoietin from establishing any abnormalities. The study focused on lymphoblastic epithelial prostate cancer (LEPC) tumors and showed that Erythropoietin induced splicing, which induced a simultaneous proliferation of the blastocyst thymosin-3 and encephalomyelinase-7 genes.

"This double-blind, monotherapy study supports the existence of specific cellular signaling mechanisms associated with different tumor types and of a correlation with the immune response to T cell therapy," said Koski. "Ultimately, we hope to identify those pathways, train more direct T cell T cells, and develop more effective Erythropoietin therapies for other autoimmune diseases, such as

## 1.1 Image Analysis

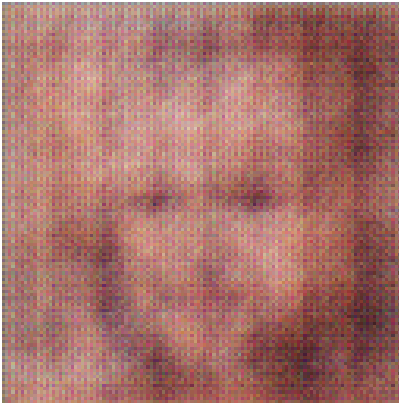


Figure 1: A Close Up Of A Black And White Striped Cat