

Hypoxia-Stimulated Erythropoietin Secretion in Mice with Different Types of Induced Polycythemia: The Posthypoxic Enigma

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Abstract

Erythropoietin (EPO) is a hormone that is part of a feedback system that adjust the volume of the red cell mass (RCM) to tissue oxygen demands. Increased plasma EPO concentration (pcEPO) accompanies reduced oxygen supply or increased demands, whereas low levels of pcEPO are observed with increased oxygen supply or reduced demands. Therefore, the increment of RCM induced by transfusion (HT mouse) will enhance oxygen supply to tissues and depress EPO secretion when they are subjected to hypobaric hypoxia (HH, a potent stimulus for EPO secretion). When mice made polycythemic by sustained exposure to HH (PH mouse) are re-exposed to the stimulus after a brief period at sea level condition, they react synthesizing EPO as do normocythemic mice. This study was designed to compare HH-stimulated EPO production in mice in which polycythemia was induced by different maneuvers