

# An anti-inflammatory drug for patients suffering from chronic hypoxia

## Active Vitamin B6 attenuates inflammatory response

### Overview

The decline in the circulatory and respiratory functions associated with aging is known to result in a reduction in oxygen concentration in peripheral tissues. The present inventors have discovered that chronic hypoxia exacerbates inflammatory responses and that the biological responses in a state of chronic hypoxia are independent of the hypoxia-inducible factor (HIF) pathway.

In the lungs of mice exposed to prolonged hypoxia (3 days at 7% oxygen concentration), a decrease in pyridoxal 5'-phosphate (PLP) was observed, and the induction of inflammation resulted in increased production of the proinflammatory cytokine IL-6, which was abrogated by PLP supplementation.

These results highlight the importance of oxygen-requiring bioactivation process of vitamin B6 and will be applied to prevent and/or alleviate of inflammation in patients suffering from chronic hypoxia.

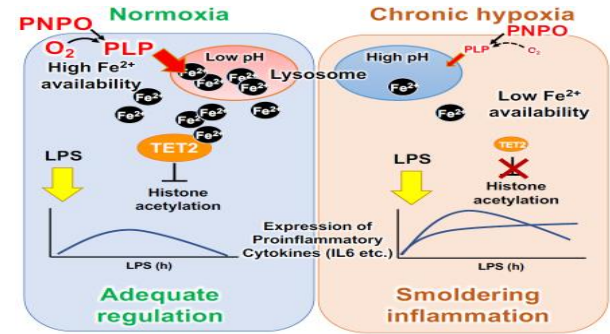
### Product Application

- ❑ Pharmaceuticals, particularly for the inflammation related to asymptomatic hypoxemia induced by COVID-19
- ❑ Supplements

### IP Data

IP No. : PCT/JP2023/037930  
 Inventor : Hiroki Sekine, Hozumi Motohashi  
 Admin No. : T22-162

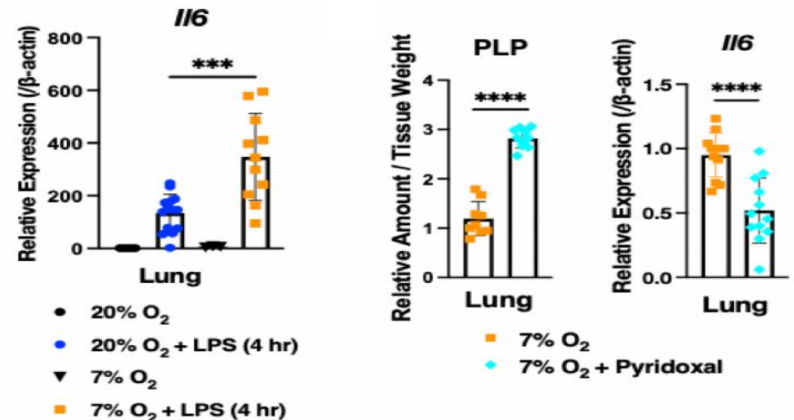
### Mechanism of action



Chronic hypoxia exacerbates inflammatory reactions due to a decrease in the production of active vitamin B6.

### Inflammatory response in prolonged hypoxia

Vitamin B6 supplementation suppressed the increase in the inflammatory cytokine IL-6.



### Related Works

[1] Sekine H et al. PNPO-PLP Axis Senses Prolonged Hypoxia by Regulating Lysosomal Activity  
 doi: <https://doi.org/10.1101/2022.10.28.514185>

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