

综述

高原环境影响药物代谢细胞色素P450酶活性的研究进展

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摘要 细胞色素P450酶是参与人体药物代谢的主要酶类。高原环境具有氧分压降低、气候寒冷和紫外线强的特点。氧分压低会造成机体各器官缺氧, 出现各种不适症状。同时, 大量研究认为在高原环境下, 缺氧等因素使细胞色素P450酶的代谢活性以及同工酶的表达发生变化, 从而导致相关药物代谢及动力学的变化。另外, 一些细胞因子和表达通路的改变也与高原环境下P450酶代谢活性的改变相关。目前, 高原适应性人群与平原世居人群的P450酶代谢活性不同, 其差异已有报道, 且相关分子机制的研究已成为新的热点。本文介绍了高原环境的特点和细胞色素P450的研究进展, 并综述了高原缺氧环境下对该酶作用机制的研究进展。

关键词 [细胞色素P450酶系统](#) [高原](#) [代谢](#)

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Influence of plateau environment on enzyme activity of cytochrome-P450 in drug metabolism and its progress

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Abstract

Cytochrome P450 is a large family of enzymes responsible for metabolism of many drugs. At high altitude, many factors, such as hypoxia, modify the catalytic activity and expression of certain isoenzymes of cytochrome P450(CYP), leading to changes in relative drug metabolism and pharmacokinetics. On the other hand, it is proved that the effect of hypoxia on hepatic CYP is delivered by cytokine and expression pathway. Additionally, the metabolic activity of CYP between adaptation and non-adaptation humans is diverse. The genetic evidence for high-altitude adaptation has been reported recently, and reserach on the molecular mechanism is becoming a new hot spot. This article summarized the achievements in the past ten years and introduced the characteristics of high altitude environments and CYP. Furthermore, the mechanisms of action underlying hypoxia-induced regulation of CYP enzymes are discussed in this review.

Key words [cytochrome P-450 enzyme system](#) [high altitude](#) [metabolism](#)

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