

ras基因产物p21的分子进化和癌变机理探讨¹⁾

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摘要 作者收集了人、果蝇、酵母、粘菌和病毒的10种p21氨基酸全顺序, 运用AADIS和UPGMA两程序并结合进一步的数据分析揭示: ①yi fl m fj wx go yu, ras基因每年每基因平均重复率为 2.78×10^{-9} , 这或许系迄今报道的最低速率保持者; ②ras基因每年每氨基酸替代率为 2.23×10^{-10} , 这在进化上是相当保守的, 数据分析进一步证实的实验结果还有: ①v-Has 和v-Kis分别来自c-H-ras 1 和c-K-ras2; ②c-H-ras1、c-K-ras2和c-N-ras由一个共同的祖先基因演化而来。根据Fitch等的观点, 我们在此特别提出了p21的不变子/共变子转化假说, 从分子进化角度对p21在癌变中的作用作出可能的解释。

关键词 [癌基因, 分子进化, 癌变机理, 协同进化](#)

分类号

Molecular Evolution and a Speculative Carcinogenesis Mechanism for ras p21

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Abstract

Ten of amino acid sequences of ras p21 which come from human, fruit fly, yeast, Dictyostelium and virus were collected and analyzed. Data analysis indicates that: 1. the mean duplicate rate of ras p21 is approximately 2.78×10^{-9} per gene per year for concerted evolution; 2. the mean amino acid replacement of p21 is about 2.23×10^{-10} per year. It also shows that v-Has and v-Kis were derived from c-H-ras1 and c-K-ras2, respectively, and that c-H-ras1, c-K-ras2 and c-N-ras come from the same ancestor. These results are in accordance with the experimental results reported by other authors. According to the view of Fitch et al., we present here a speculative view for carcinogenesis mechanism the hypothesis for covariations and invariations, by which, the codon 12 or 61 mutated in p21 may be responsible for last one or more steps in carcinogenesis.

Key words [Oncogene](#) [Molecular Evolution](#) [Carcinogenesis Mechanism](#) [Concerted Evolution](#)

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