遗传学报 1993 20 (5): 381-388 ISSN: 0379-4172 CN: 11-5450/R

急性早幼粒细胞白血病(APL)中t(15;17)染色体易位的分子机制研究*

董 硕, 童建华, 吴 瑜, 蔡敬仁, 孙关林, 陈淑蓉, 王振义, 陈赛娟, 陈 竺, 耿解萍, 戚振武

1.海血液学研究所分子生物学实验室上海第二医科大学瑞金医院，上海 200025; 2.中国科 学院上海生化所，上海

收稿日期 修回日期 网络版发布日期 接受日期

摘要 对急性早幼粒细胞白血病(APL)中t(15；17)染色体易位的分子生物学研究显示，17号染 色体上的维甲酸受体α(RARA)基因与15号染色体上的PML基因并置，并产生PML RARA融合基 因。我们以前的工作证明APL患者中PML基因断裂点集中于2个有限区域，即PML-bcr1和PML-b cr2,二者相距约10kb。本文确定了PML-bcr1的DNA顺序，并确定了一例APL患者染色体相互易 位接合部的基本结构。与以前国外所报道的二例病例进行了比较，发现断裂点可能处于拓扑 异构酶II裂解位点，由此，我们对t(15;17)中DNA异常重组的机制提出了一个工作模型。

关键词 急性早幼粒细胞白血病(APL),染色体易位,维甲酸受体α基因(RARA),早幼粒细胞白 血病基因(PML)

分类号

Molecular Study of the Mechanism of Chromosomal Translocation (15;17) in Acute P romyelocytic Leukemia(APL)*

Dong Shuo, Tong Jianhua, Wu Yu, Cai Jingren, Sun Guanlin, Chen Shurong, Wa ng Zhenyi, Chen Saijuan, Chen Zhu，Geng Jieping， Chi Zhenwu

Laboratory of Molecular Biology, Shanghai Institute of Hematology, Shanghai Rui-Jin Hospital, Shanghai Second Medical University, 197, Rui-jin Road II, Sha nghai 200025; 2.Institute of Biochemistry, Academica Sinica, Shanghai 200031

Abstract

Molecular studies of chromosomal translocation (15;17)in acute promyelocytic leukemia(APL) have shown that retinoic acid receptor A(RARA) gene on chromosome 17 is juxtaposed to the PML gene on chromosome 15. This results in a PML-RARA c himeric gene. Our work has demonstrated that the PML breakpoints in APL patients are clustered in two limited regions. PML-bcr1 and PML-bcr2, separated from eac h other by about 10 kb. DNA sequence of PML-bcr1 and primary structure of the ju nctional region of reciprocal chromosomal translocation in a patient have been d etermined in this paper. Compared to those of two previously reported cases abro ad, we found that the breakpoint may be situated in the topoisomerase II cleavage site. A working model has been proposed for the mechanism of DNA illegitimate recombination in t(5;17).

Key words Acute promyelocytic leukemia (APL) Chromosomal translocation Retinoic acid receptor A gene(RARA) Promyelocytic leukemia gene(PML)

DOI:

通讯作者