Leukaemia Section
Mini Review

\[ t(1;7)(p32;q34) \]
\[ t(1;14)(p32;q11) \]
1p32 rearrangements

Jean-Loup Huret

Genetics, Dept Medical Information, University of Poitiers, CHU Poitiers Hospital, F-86021 Poitiers, France

Published in Atlas Database: January 1998

Online version is available at: http://AtlasGeneticsOncology.org/Anomalies/t0114.html
DOI: 10.4267/2042/32103

This work is licensed under a Creative Commons Attribution-Non commercial-No Derivative Works 2.0 France Licence. © 1998 Atlas of Genetics and Cytogenetics in Oncology and Haematology

Identity

Note: the two chromosome anomalies are variants of each other, and they share identical features.

\[ t(1;14)(p32;q11) \] G-banding - Courtesy Diane H. Norback, Eric B. Johnson, and Sara Morrison-Delap, UW Cytogenetic Services.

Clinics and pathology

Disease
T-cell ALL.

Epidemiology
Rare findings; \( t(1;14) \) is found in approximately 3% of T-ALL; \( t(1;7) \) is rarer (status 3: < 5 cases); however, TAL1 rearrangements, alltogether (being mostly submicroscopic deletions without visible 1p32 involvement), occurs in 15-25% of T-ALL; male predominance (as is classical in T-cell ALL).

Clinics
Organomegaly; high WBC (median 200 \( \times 10^9/\text{l} \)).
Cytogenetics

Additional anomalies

t(1;14) is found solely in about half cases, and accompanied by del(6q) in nearly half cases as well.

Genes involved and Proteins

**TAL1**

*Location:* 1p32

*DNA / RNA*

Complex alternate splicing.

*Protein*

Contains a basic Helix-Loop-Helix (DNA binding) domain; forms heterodimers; transcription factor; role in haematopoietic cell differentiation.

**TRA/D**

*Location:* 14q11 in the case of a t(1;14).

**TRB**

*Location:* 7q35 in the case of a t(1;7).

Result of the chromosomal anomaly

**Fusion protein**

*Description*

In most cases (breakpoints between exons 2B and 3 of TAL1), 3’ TAL1 joins variable and diversity segments of TCR on der(14); in the few cases where the breakpoint is within exon 6 of TAL1 or 3’ from it, constant segments of TCR join TAL1 on der(1).

References


This article should be referenced as such: