

## Leukaemia Section

### Mini Review

# inv(16)(p13q22) in treatment related leukemia

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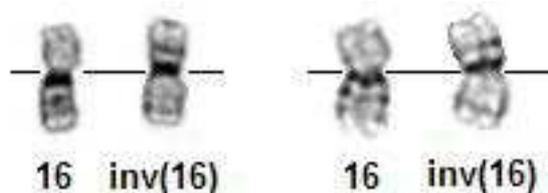
Online updated version : <http://AtlasGeneticsOncology.org/Anomalies/inv16p13q22TreatRelID1297.html>

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### Identity

**Note:** This data is extracted from a very large study from an International Workshop on treatment related leukemias - restricted to balanced chromosome aberrations (i.e.: -5/del(5q) and -7/del(7q) not taken into account per se), published in Genes, Chromosomes and Cancer in 2002.



inv(16) diagram and FISH - Courtesy Hossein Mossafa; insert: first row: inv(16)(p13q22) G-banding - Courtesy Diane H. Norback, Eric B. Johnson, and Sara Morrison-Delap, UW Cytogenetic Services; second row: R- banding - Courtesy Hossein Mossafa.

### Clinics and pathology

#### Disease

Treatment related myelodysplasia (t-MDS) or acute non lymphocytic leukaemias (t-ANLL).

#### Note

The study included 48 cases; t-MDS without progression to ANLL accounted for 8%, t-MDS with progression to ANLL for 13% and t-ANLL for the remaining 79% the ANLL subtype was M4eo in 83%, M2 in 14%; no case of acute lymphoblastic leukaemia.

#### Epidemiology

inv(16)(p13q22) was found in 9% of t-MDS/t-ANLL; sex ratio: 18M/30F.

### Clinics

Age at diagnosis of the primary disease 43 yrs (range 6-75); age at diagnosis of the t-MDS/t-ANLL: 48 yrs (range 13-77). Median interval was short: 22 mths (range: 8-533). Primary disease was a solid tumor in 71% of cases (in particular breast cancer, sarcoma, cancer of the ovary) and a hematologic malignancy in 27%, treatment was radiotherapy (21%, a relatively high proportion compared to other groups), chemotherapy (29%), or both (50%). Treatment included topoisomerase II inhibitors in 60% of cases and alkylating agents in 63%.

### Prognosis

Patients under 55 yrs of age had better outcome. Median survival was 29 mths, with 45% of patients surviving at 5 yrs, the best survival among subgroups of treatment related leukemias with a balanced chromosome aberration (patients with 11q23 rearrangement, 3q21q26 rearrangement, 12p13 rearrangement, t(9;22), t(8;16), or a 21q22 rearrangement). Patients with t(15;17) had similar median survival, but less long term survivors.

### Cytogenetics

#### Additional anomalies

The inv(16) was found solely in 46% of cases; additional anomalies were: +8 in 17% , +21 in 13%, +22 in 8%, -7/del(7q) in 8%, +13 in 6%, or -5/del(5q).

### Result of the chromosomal anomaly

#### Hybrid gene

##### Description

5'CBFB -3' MYH11.

## References

Andersen MK, Larson RA, Mauritzson N, Schnittger S, Jhanwar SC, Pedersen-Bjergaard J. Balanced chromosome abnormalities *inv(16)* and *t(15;17)* in therapy-related myelodysplastic syndromes and acute leukemia: report from

an international workshop. *Genes Chromosomes Cancer*. 2002 Apr;33(4):395-400

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*This article should be referenced as such:*

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