t(11;14)(q13;q32) G-banding (left) - Courtesy Diane H. Norback, Eric B. Johnson, Sara Morrison-Delap Cytogenetics at the Waisman Center and R-banding (right) - Editor.

Note: t(11;14) is mainly found in mantle cell lymphoma, but also in B-prolymphocytic leukaemia, in plasma cell leukaemia, in splenic lymphoma with villous lymphocytes, in chronic lymphocytic leukaemia, and in multiple myeloma, herein briefly described; all these diseases involve a B-lineage lymphocyte.

Phenotype / cell stem origin
B-cell non Hodgkin lymphoma of the low to intermediate grade.

Epidemiology
Annual incidence 5/10^6; median age: 65 yrs.

Clinics
Advanced disease.

Prognosis
Median survival: 3 to 4 yrs.

Disease
Mantle cell lymphoma.
**Disease**
B-prolymphocytic leukaemia.

**Phenotype / cell stem origin**
Chronic lymphoproliferative disorder affecting mature B-cells.

**Epidemiology**
Rare disease; median age 70 yrs.

**Clinics**
Patients often present with advanced stage disease.

**Prognosis**
Median survival: 3 yrs.

**Disease**
Plasma cell leukaemia.

**Phenotype / cell stem origin**
Proliferation involving plasma cells.

**Epidemiology**
Rare disorder.

**Prognosis**
Median survival is less than a yr.

**Disease**
Splenic lymphoma with villous lymphocytes.

**Phenotype / cell stem origin**
Chronic B-cell lymphoproliferation.

**Epidemiology**
Rare disorder; median age: 70 yrs.

**Clinics**
Relatively benign clinical course.

**Prognosis**
80% 5-yr survival.

**Disease**
Chronic lymphocytic leukaemia.

**Phenotype / cell stem origin**
Chronic B-cell lymphoproliferation.

**Epidemiology**
Annual incidence 30/10^6; median age: 60-80 yrs.

**Clinics**
Often a slow evolutive disease.

**Prognosis**
Highly variable according to the staging: from staging A: survival not reduced compared to age matched population, to staging C: median survival of 2 yrs.

**Disease**
Multiple myeloma.

**Phenotype / cell stem origin**
Malignant plasma cell proliferation (terminally differentiated B-cell).

**Epidemiology**
Annual incidence: 30/10^6; median age: 60 yrs.

**Prognosis**
Median survival: 3 yrs.

**Cytogenetics**

**Cytogenetics, morphological**
t(11;14) has earlier been thought to be the hallmark of the mantle cell lymphoma; actually, the frequency of t(11;14) is: 50-70% in mantle cell lymphoma, 10-20% in B-prolymphocytic leukaemia, in plasma cell leukaemia, and in splenic lymphoma with villous lymphocytes, and 2-5% in chronic lymphocytic leukaemia, and in multiple myeloma.

**Cytogenetics, molecular**
In particular interphase cytogenetics, are relevant in these diseases with an usually low mitotic index.

**Additional anomalies**
Sole anomaly in only 10% of cases; part of a complex karyotype in 2/3 of cases; numerous recurrent anomalies found conjointly (which is the primary?), particularly: +3, +7, del(9p), +18, +mar, found in about 10% of cases each; other: del(1p), del(6q), del(7q), -8, +12, del(13q), del(17p).

**Variants**
Three way complex t(11;14;Var) exist and showed that the crucial event lies on der(14).

**Genes involved and Proteins**

**BCL1**
**Location:** 11q13

**DNA / RNA**
5 exons.

**Protein**
Encodes the cyclin D1; role in the cell cycle control: G1 progression and G1/S transition.

**IgH**
**Location:** 14q32

**Results of the chromosomal anomaly**

**Hybrid gene**

**Description**
5' BCL1 translocated on chromosome 14 near JH (junctions genes of IgH) and C in 3'; the breakpoint in BCL1 is in MTC (major translocation cluster), centromeric to the gene (in 5'), in 80% of cases, or dispersed in mTC1, 2, or 3 in 5' of the gene or in the 3' untranslated region of exon 5.
**Fusion protein**

**Description**
No fusion protein, but promoter exchange; the immunoglobulin gene enhancer stimulates the expression of BCL1.

**Oncogenesis**
Overexpression of BCL1 accelerates passage through the G1 phase.

**References**


This article should be referenced as such: