Cyclin D1 positive multiple myeloma: Predominance of the short, 3'UTR-deficient transcript is associated with high cyclin D1 mRNA levels in cases with t(11; 14) translocation, but does not correlate with proliferation rate or genomic deletions.

Abstract:
Multiple myeloma (MM) frequently shows overexpression of cyclin D1, either due to a t(11; 14)(q13; q32) translocation, or in association with polysomy 11. The predominant expression of a cyclin D1 mRNA isoform lacking the 3'-untranslated region (Delta3'UTR) is associated with higher total cyclin D1 mRNA levels, increased proliferation and poor prognosis in mantle cell lymphoma, and can be caused by genetic alterations of the 3'UTR region. The role of this cyclin D1 isoform in MM is unknown. We therefore quantified levels of total and Delta3'UTR cyclin D1 mRNA by real-time RT-PCR in cytogenetically characterized cyclin D1+MM primary cases, and cyclin D1+cell lines. Both long and Delta3'UTR cyclin D1 transcripts were expressed in 35/41 MM cases, but none of the samples showed complete loss of the long transcript or genomic alterations of the 3'UTR. Predominance of the Delta3'UTR mRNA was associated with higher cyclin D1 levels in cases with t(11; 14), but did not correlate with the proliferation rate, suggesting a different role of this isoform in MM.