Role of HDAC inhibitors in multiple myeloma

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Epigenetic changes and mutations in epigenetic modifiers characterize and likely drive many cases of haematological malignancies, including multiple myeloma, acute myeloid leukemia and myelodysplastic syndrome. In the recent years, development of DNA methyltransferase inhibitors has been most successful in this context. While many epigenetic marks are potential targets of cancer therapies, histone deacetylase inhibitors (HDACi) have undergone the most advanced development to date. However, one should bear in mind that the redundancy and the pleiotropic activity of HDACi (on both histone and non-histone proteins) are key factors that have limited to date the selection of patients and the design of robust biomarkers.
In this lecture, we will discuss and describe some of the major biology findings and the clinical results of HDAC inhibitors in the settings of myeloma.
While significant research has been performed, many questions remain for both single agent and HDACi based combination regimens.
Ongoing advances in biology (mechanisms of resistance, immune mechanisms etc.) and the design of more specific new generation HDACi are important features that will drive the future clinical development of HDACi in myeloma and other haematological malignancies.