

SSX antigens as cancer vaccines

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Expression of SSX genes in adult human tissues shows a very restricted distribution being mainly found in testis. However, ectopic expression of SSX genes is detectable in variable proportions of tumors of different histological types. This expression pattern is typical of the so-called cancer/testis antigens (CTA) group to which the SSX gene family belongs. Similarly to other CTA, SSX promoter activity is methylation sensitive, indicating that SSX gene expression in cancer could be at least partially due to genome-wide demethylation. In addition, expression of SSX genes can occur as a result of the chromosomal translocations t(X;18)(p11.2;q11.2) commonly found in synovial sarcoma. The predicted SSX gene products are 188 amino acids long proteins localized in the cell nucleus and sharing 70 to 90% homology. To date, little is known about their normal biological functions. Several lines of evidence, however, point at their role as modulators of gene transcription. Together, the current information about expression and activity of the SSX gene products converges towards an important role played by these molecules in cancer and supports their interest as targets for cancer immunotherapy.

As part of a larger project aimed at the development of SSX-based immunotherapy in cancer patients, we have undertaken the assessment of natural CD8+ and CD4+ T-cell responses to the SSX antigens in melanoma patients bearing antigen-expressing tumors. My presentation will summarize our findings up to date and discuss their implications for the development of SSX-based vaccines.

References

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