

presented in the T cells⁽¹³⁾, therefore the tumor cell proliferates are unperturbed by the immune system and tumor cells protect themselves from host' immunosurveillance. There is possibility that HLA allele genetic association and expression on tumor cells may provide a clue to the understanding of the therapeutic mechanisms of biological response modifiers or immunotherapy which may cut through the induction of HLA antigens on malignant cells⁽¹⁷⁻²²⁾. The cells of a given individual may express HLA alleles, which altered binding to tumor peptides, thereby leading to a modified immune response to the tumor. Identification of the mechanism associating HLA-DRB1*10011 and DRB1*10012 with brain astrocytoma could ultimately help target individuals most likely to benefit from cancer screening and prevention strategies and could facilitate novel therapeutic programs for cancer immunoprevention. Further studies with large number of patients with use of nucleotide sequence of targeted alleles may show more clear correlation⁽²³⁾. The presence of HLA antigen defects in malignant brain tumors may provide an explanation for the relatively poor clinical response rates observed in the majority of the T cell–based immunotherapy clinical trials conducted to date in patients with malignant brain tumors⁽²⁴⁾.

References

- 1- Liz Y. Han, Mavis S. Fletcher, Diana L. Urbauer, Peter Mueller, Charles N. Landen, Aparna A. Kamat, Yvonne G. Lin, William M. Merritt, Whitney A. Spannuth, Michael T. Deavers, Koen De Geest, David M. Gershenson. HLA Class I Antigen Processing Machinery Component Expression and Intratumoral T-Cell Infiltrate as Independent Prognostic Markers in Ovarian Carcinoma. *Clinical Cancer Research* 2008; 14: 3372-3379.
- 2- Geertsens R, Hofbauer G, Kamarashev J, et al. Immune escape mechanisms in malignant melanoma. *Int J Mol Med* 1999; 3: 49-57.
- 3- Jimenez P, Canton J, Concha A, et al. Microsatellite instability analysis in tumors with different mechanisms for total loss of HLA expression. *Cancer immunol immunother* 2000;

48: 684-690.

- 4- Ramal LM, Maleno I, Cabrera T, et al. molecular strategies to define HLA haplotype loss in microdissected tumor cells. *Hum Immunol* 2000; 61: 1001-1012
- 5- Facoetti A, Capelli E, Nano R. HLA class I molecules expression: evaluation of different immunocytochemical methods in malignant lesions. *Anticancer Res* 2001;21:2435-2440.
- 6- Lizzia Raffaghello, Paolo Nozza, Fabio Morandi, Marta Camoriano, Xinhui Wang, Maria Luisa Garrè, Armando Cama, Giuseppe Basso, Soldano Ferrone, Claudio Gambini and Vito Pistoia. Expression and Functional Analysis of Human Leukocyte Antigen Class I Antigen-Processing Machinery in Medulloblastoma. *Cancer Research* 2007; 67: 5471-5478.
- 7- Lin J, Deng CS, Sun J et al. Study on the genetic susceptibility of HLA-DGB1 alleles in esophageal cancer of Hubei Chines Hans. *Shijie Huaren Xiaohua Zazhi* .2000; 8:965-968
- 8- Noble A. Review article: molecular signals and genetic reprogramming in peripheral T-cell differentiation, immunology .2000; 101: 289-299.
- 9- Angelica Facoetti, Rosanna Nano, Paola Zelini, Patrizia Morbini, Eugenio Benericetti, Mauro Ceroni, Michael Campoli and Soldano Ferrone. Human Leukocyte Antigen and Antigen Processing Machinery Component Defects in Astrocytic Tumors . *Clinical Cancer Research*. 2005; Vol. 11: 8304-8311.
- 10- Yu SZ, Xu XH, Zhang JQ. A study on HLA-Dr expression of brain tumor cells and mononuclear cell subsets infiltrating in these tumors. *Zhonghua Bing Li Xue Za Zhi*. 1994 Aug; 23(4):221-3.
11. Biotest ABDR SSP tray. Ready to use SSP reagent kit for DMA based HLA-A, -B, -DRB typing 2001.
12. Snedecor GW, Cochran WG. Statistical methods. 10th ed. Iowa State University Press. Iowa. USA. 1981.
13. Anderson Richard CE MD, Anderson David E, Elder James B, Brown Melandee D, Mandigo Christopher E, Parsa Andrew T, Goodman Robert R, McKhann Guy M, Sisti Michael B, Bruce Jeffrey N. LACK OF B7 EXPRESSION, NOT HUMAN LEUKOCYTE ANTIGEN EXPRESSION, FACILITATES IMMUNE EVASION BY HUMAN MALIGNANT GLIOMAS. *Neurosurgery*. 2007 ; 60(6):1129-1136,
14. Bustin SA, Lis R, Philips S, et al. Expression of HLA class II in colorectal cancer: evidence for enhanced immunogenicity of microsatellite-instability-positive tumors. *Tumor Biol* 2001; 22: 294-298.
15. Hombach A, Heuser C, Marquardt T, et al. CD4+ cells engrafted with a recombinant