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The impact of HLA Class I on susceptibility to Hodgkin lymphoma is mediated by the magnitude of tumor associated CD8+ T-cell Immunity

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The biological basis for the association between Epstein-Barr virus positive Hodgkin Lymphoma (EBV+HL) and HLA-class I alleles is unclear. HLA-class I presents viral peptides for recognition by CD8+ T-cells. Our aim was to further understand the immunological influence of HLA-A alleles on susceptibility to EBV+HL. In healthy subjects, antigen presentation for a range of relevant CD8+ T-cell EBV-latent epitopes was consistently higher in HLA-A2 than HLA-A1 and/or A3 subjects. In HL patients, EBV+HL patients had diminished immunity against EBV-nuclear antigen-1 and Latent Membrane Proteins 1 and 2A relative to EBV-HL patients. We show that for a malignancy expressing a restricted set of poorly immunogenic viral proteins, even a modest CD8+ T-cell response against a relevant tumour associated antigen appears protective. Our data advances the understanding of genetic susceptibility to viral associated malignancies, and has implications for EBV vaccine design.

Biography

Dr Gandhi is Laboratory Group Leader of the Clinical Immunohaematology Laboratory at the Queensland Institute of Medical Research in Brisbane, Australia, and Senior Staff Haematologist at the Princess Alexandra Hosptial, Brisbane. The major research interests in his laboratory involve viral and immune biomarkers, immuno-evasion, viral micro-RNA expression and optimisation of cellular immunotherapies for virus associated lymphomas.

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