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Abstract

LAG-3 Role in Infection †

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Abstract: Lymphocyte activation gene 3 (LAG-3) is a cell surface inhibitory receptor with multiple biological activities over T cell activation and effector functions. LAG-3 plays a regulatory role in immunity and emerged some time ago as an inhibitory immune checkpoint molecule. A systematic research was performed using the PubMed and ClinicalTrial.gov databases. Articles published up to 2021 meeting the inclusion criteria were investigated. LAG-3 expression has been linked to increased pathology in certain infections, such as the ones caused by Salmonella, Plasmodium parasites, Mycobacterium tuberculosis, human immunodeficiency virus (HIV), non-pathogenic simian immunodeficiency virus (SIV), in hepatitis B virus (HBV), human papillomavirus (HPV), chronic hepatitis C virus (HCV), lymphocytic choriomeningitis virus (LCMV) and herpes simplex virus 1 (HSV-1). Here, we will discuss the impaired control of cell-mediated immunity associated with high accumulation of LAG-3 after infection, in most cases associated with a high bacterial/viral load, a reduced survival rate or persisting metabolic and inflammation disorders. Interestingly, the in vitro blockade of PD-1/LAG-3 interactions enhanced cytokine production in response to some of these infections.

Keywords: LAG-3; Immune Checkpoint