

## **Potential Transformation of Age-Associated B Cell During Chronic Cytomegalovirus Infection Among Transplantation Patients**

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**INTRODUCTION AND OBJECTIVE:** Age-associated B cells (ABCs) are a subset of B cells characterized by distinct phenotypic, and their accumulation has been linked to autoimmunity, aging, and viral infections. This study aims to look at the transformation of ABCs in transplant recipients within the context of cytomegalovirus (CMV). The prevalence of CMV infection among transplant patients is notably high, posing a significant challenge in the management and clinical outcomes of transplantation. CMV has developed sophisticated strategies to evade the immune system; including interfering with major histocompatibility complex (MHC) expression on infected cells, impairing the presentation of viral antigens, and producing NK inhibiting ligands. CMV can establish chronic infections within the host, particularly in individuals that are immunosuppressed. We have observed an expansion of T cells in CMV+ transplant patients. This study aims to investigate the transformation and shift of B cell populations in the context of chronic CMV infection among transplantation patients.

**METHODS:** Flow cytometry is employed as the primary method in this study. We are currently developing a flow cytometry panel, including fluorochrome selection and antibody titration. For general B cells, we are using markers CD3-, CD14-, CD16-, and CD19+. We define ABCs as B cells that are CD21-, CD11c+, and T bet+.

**RESULTS:** The focus has been on developing a flow cytometry panel to identify and measure ABCs in human peripheral blood mononuclear cells (PBMCs) samples from CMV+ and CMV-transplant patients. Our study aims to compare ABCs and B cell populations between the two groups. We anticipate observing an expansion effect, where CMV-positive transplant patients exhibit higher numbers of ABCs and B cells.

**CONCLUSIONS:** The anticipated findings of increased ABCs and B cells in CMV-positive transplant patients have significant implications due to the association of ABCs with autoimmunity. This study may shed light on the impact of chronic CMV infection on B cell populations and overall immune response in transplantation patients.