in the blood at ~26-119%. These circulating plasmablasts/plasma cells expressed a mucosal phenotype, i.e., IgA, beta7 integrin and CCR10 before and throughout the B cell depletion phase. Recently activated plasmablasts were revealed by high expression of HLA-DR, in vitro migration towards CXCL12 and CCL28 and Ki-67 expression. Consistently, IgA+ plasmablasts and plasma cells were also identified in lamina propria biopsies of rituximab-treated patients. Numbers of circulating plasmablasts did not significantly correlate with DAS28 values. Notably, antibody produced by peripheral blood IgA+ plasmablasts generated during B cell depletion frequently bound to bacterial antigens.

Our results suggest the persistent generation of mucosal plasmablasts during B cell depletion with rituximab, pointing towards the resistance of some functional B cells, residing in the mucosa and permitting the differentiation of IgA+ plasmablasts. Our data suggest that rituximab has a limited capacity to target mucosal B cells and antibody production.