

## B cells, antibodies and chronic rhinosinusitis

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Chronic rhinosinusitis (CRS) is a chronic inflammatory disorder of the nasal and paranasal sinuses that affects more than 30 million people in the United States. CRS is generally divided into two subgroups: CRS with nasal polyps (CRSwNP), characterized by Th2 inflammation and eosinophilia, and CRS without nasal polyps (CRSsNP), characterized by Th1 inflammation and neutrophilia. Despite the high prevalence of this disease, little is known about its pathogenesis. There is however, mounting evidence to suggest that B cells play a pivotal role in CRS. Key factors associated with B cell-mediated inflammation are elevated in nasal polyp tissue (NP) compared to control sinus tissue. These include B cell-activating factor of the TNF family (BAFF) and IL-6, as well as the presence of auto antigen-specific antibodies. Moreover, there are significant elevations of both B cells and plasma cells in NP, and overall elevations of several immunoglobulin isotypes, including IgG, IgE and IgA, in sinus tissue from CRS patients have also been reported. Interestingly, expression of Epstein Barr virus-induced protein 2 (EBI2), which is known to be important for the generation of robust antibody responses in secondary lymphoid organs, is also elevated in NP and correlates with expression of plasma cell markers. These findings suggest that a local dysregulation of B cell activation and antibody production may be an important driver of chronic inflammation in patients with CRS, and may provide novel targets for development of improved therapeutic strategies.

### Biography

Kathryn Hulse received her Ph.D. in Microbiology from the University of Virginia in 2008. Her thesis work focused on the immunomodulation of human allergen-specific T cells using a modified allergen variant. Hulse's postdoctoral work at Northwestern University has focused on elucidating the mechanisms that underlie the pathogenesis of chronic rhinosinusitis. Her primary area of interest is human immunology, and she has published much of her work in some of the top journals in the fields of allergy and immunology.

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