The role of immune cells in Chronic Rhinosinusitis

DIJANA MILJKOVIC

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Abbreviations

AHC	Aryl hydrocarbon receptor	LPS	Lipopolysaccharide
APC	Antigen presenting cell	LTI	Lymphoid tissue inducer cells
ATPs	Adenosine triphosphates	MBP	Major basic proteins
BCR	B cell receptors	MD-2	Myeloid differentiation factor 2
Bregs	Regulatory B cells	mDC	Myeloid DC
CFTR	Cystic fibrosis transmembrane regulator	MyD88	Myeloid differentiation primary response gene 88
CRS	Chronic rhinosinusitis	MZ	Marginal zone
CRSsNP	CRS without nasal polyps	NETS	Neutrophil extracellular traps
CRSwNP	CRS with nasal polyps	NF-kB	Nuclear factor Kappa B
CT	Computed tomography	NLR	NOD-like receptors
DAMPS	Danger associated molecular patterns	nTregs	Natural Tregs
DC	Dendritic cell	PAMPS	Pathogen-associated molecular patterns
dsRNA	Double stranded RNA	pDC	Plasmacytoid DC
ECP	Eosinophil cationic protein	PRRs	Pattern recognition receptors
ECRS	Eosinophilic chronis rhinosinusitis	RNA	Ribonucleic acid
EPO	Eosinophil peroxidase	Rorγt	RAR-related orphan receptor gamma t
EPOS	European position paper	RP105	Radioprotective 105
G-CSF	Granulocyte colony stimulating factor	SLE	Systemic lupus erythematosus
HLA	Human leukocyte antigen	T-bet	T-box transcription factor
IBD	Inflammatory bowel disease	Th1	T helper 1
Ig	Immunoglulin	Th2	T helper 2
IHC	Immunohistochemistry	TIR	Toll/interleukin-1 receptor
IL-1	Interleukin-1	TLR	Toll-like receptors
IL-12	Interleukin 12	TNF-α	Tumour necrosis factor α
ILCs	Innate lymphoid cells	TRAM	TRIF-related adaptor molecule
INF-α	Interferon α	Treg	T regulatory cells
iTreg	Inducible Tregs	TRIF	TIR domain-containing adaptor inducing interferon-B
Lin-	Lineage marker negative origin		

Abstract

Chronic rhinosinusitis (CRS) is a heterogenous disease characterised by the symptomatic inflammation of the nose and paranasal sinuses for more than 12 weeks. These symptoms include nasal obstruction, nasal discharge, facial pain and pressure, resulting in a considerable impairment of a patients' quality of life. CRS is sub-categorised into two types based on the absence (CRSsNP) and presence of nasal polyps (CRSwNP) visualised within the middle meatus. Interestingly, although CRSsNP patients may lack easily identifiable polyps, the mucosa of these patients may show variable degrees of polypoid change. This raises the question as to whether the proposed classification system is an over simplification and that CRSsNP and CRSwNP in fact only represent two extremes of phenotype along a broader spectrum of immunologically different disease processes. Recently, research into CRS has identified a dysregulated immune response as a major contributor to the aetiopathology of disease, however few studies have utilised flow cytometry to phenotype the cells present. This thesis examines both the local and systemic populations of different adaptive and innate immune cells in the tissue and blood of CRSsNP and CRSwNP patients along different degrees of polypoid change within the same patient.