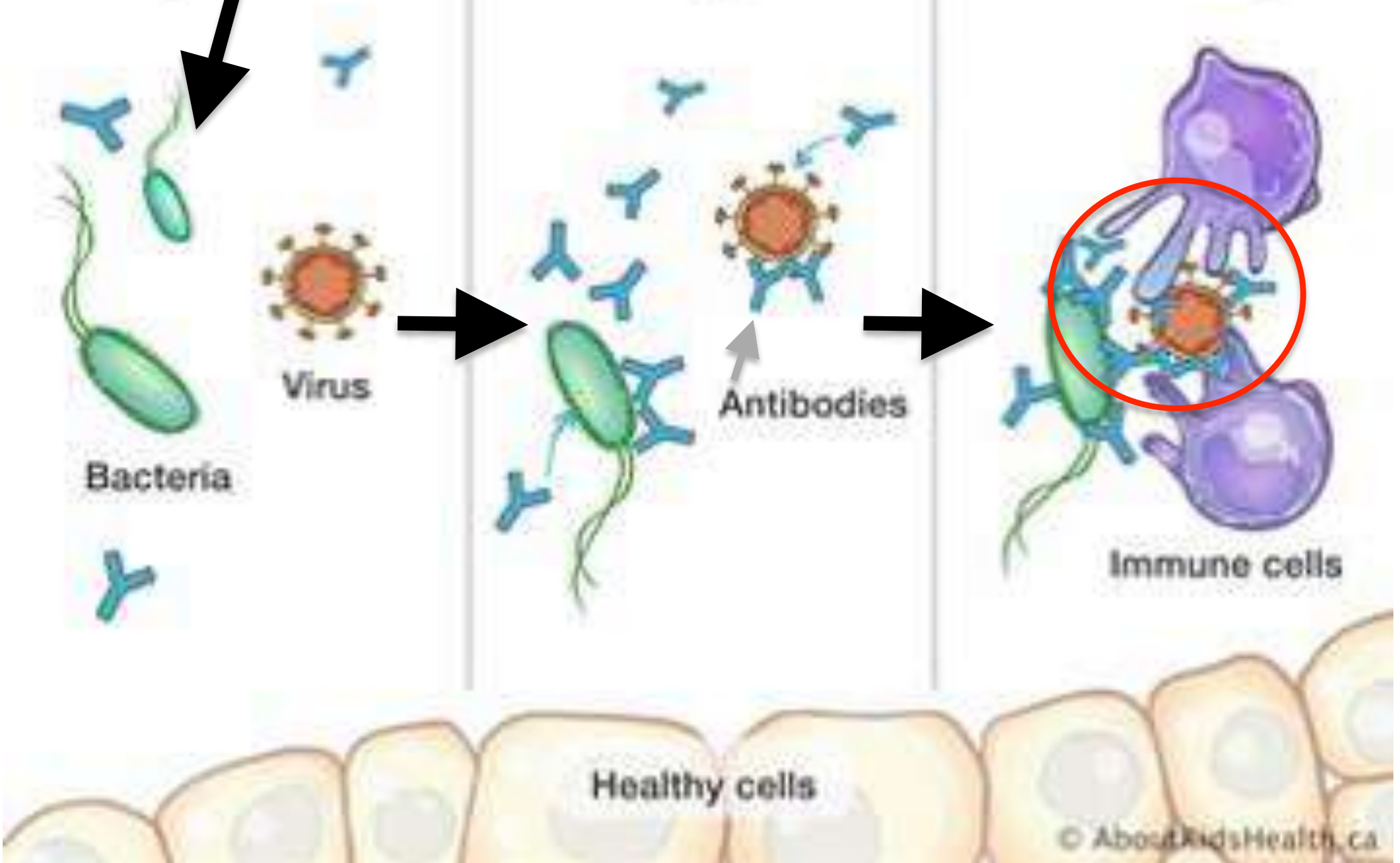


Harmful things enter the body

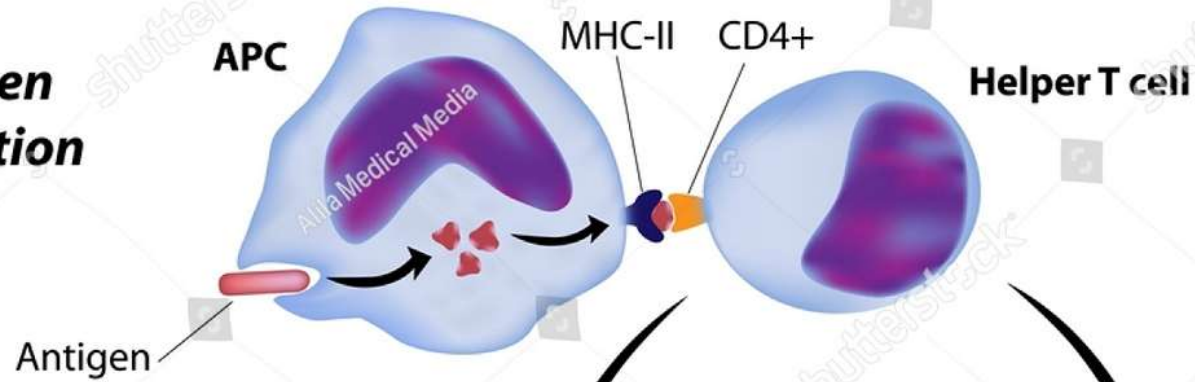
Antibodies "mark" harmful things as bad

Immune cells attack the harmful things



# Helper T cell Activation and Action

## 1. Antigen recognition



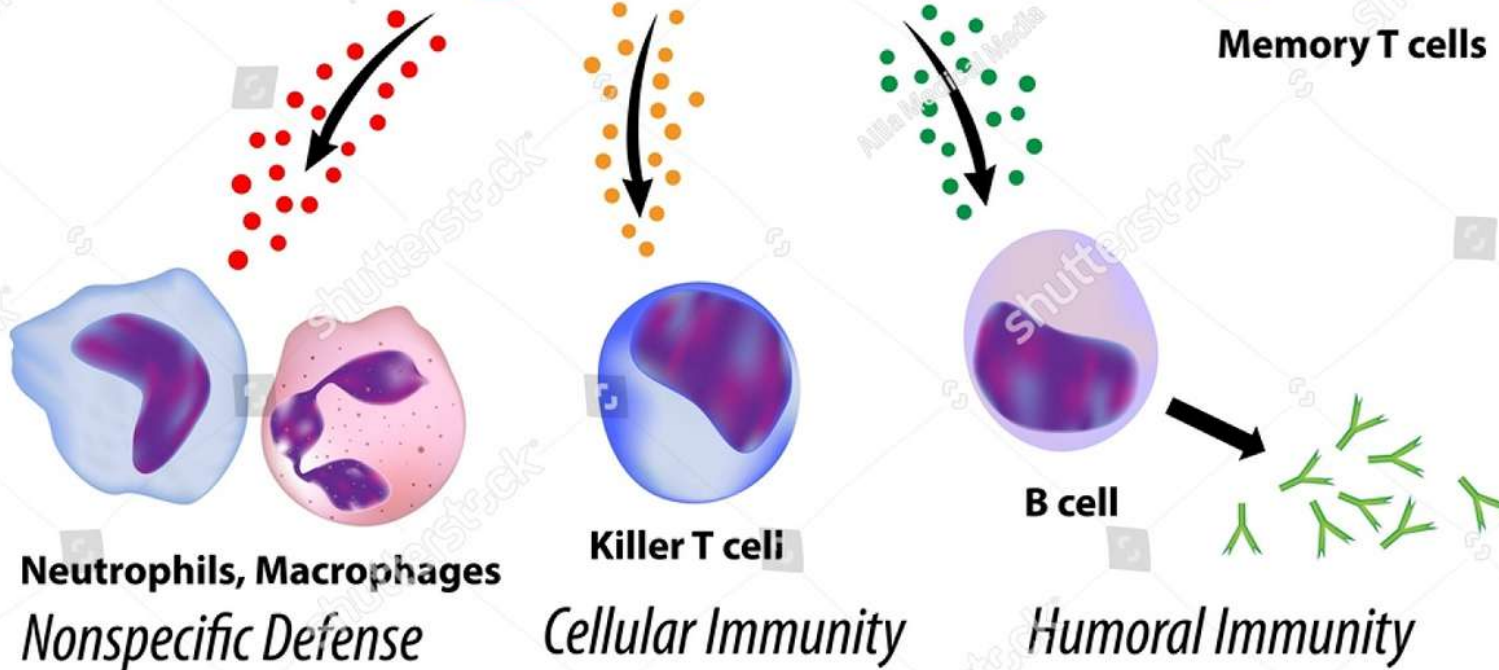
## 2. Clonal selection

Effector cells



Memory T cells

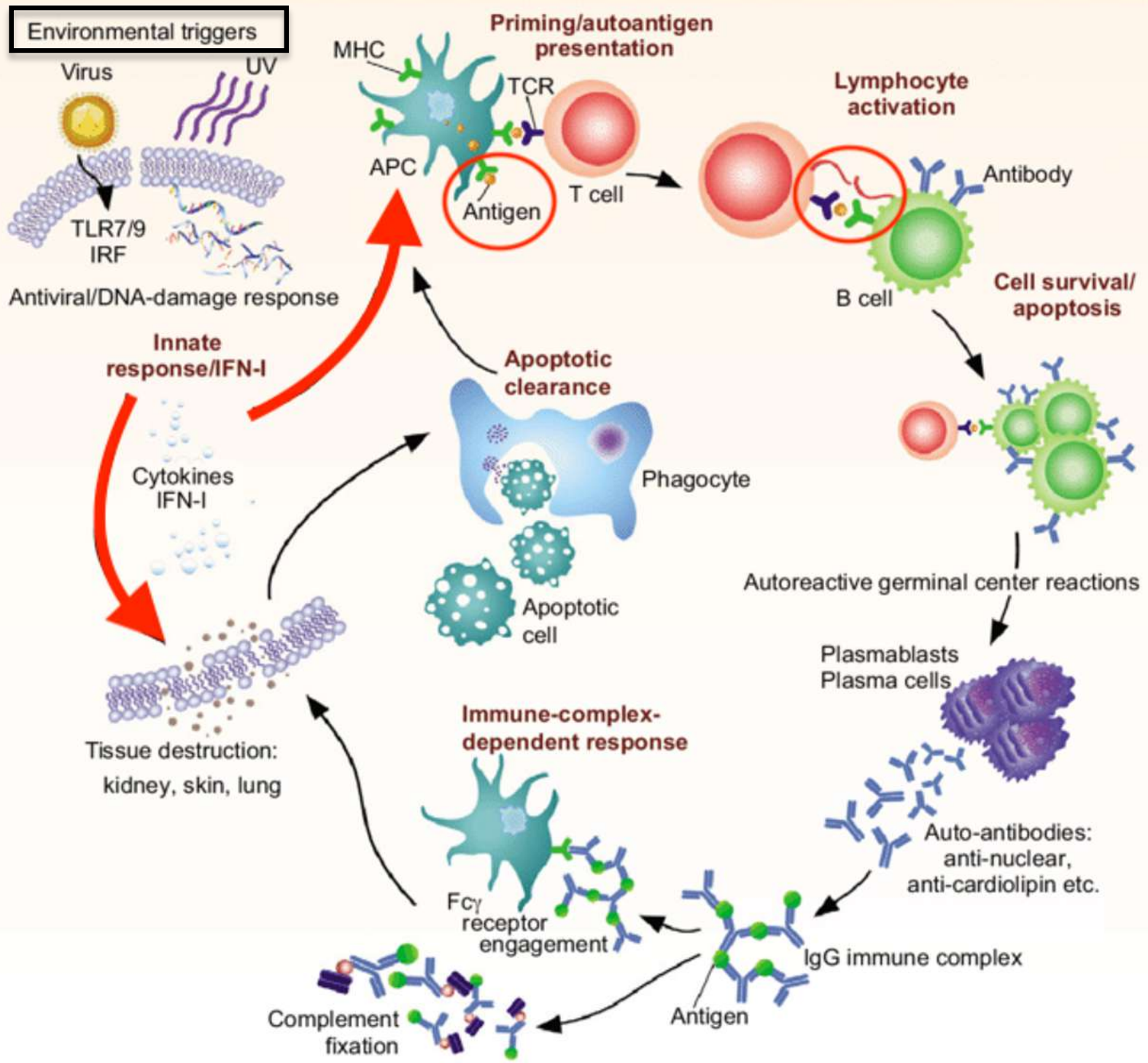
## 3. Interleukin secretion



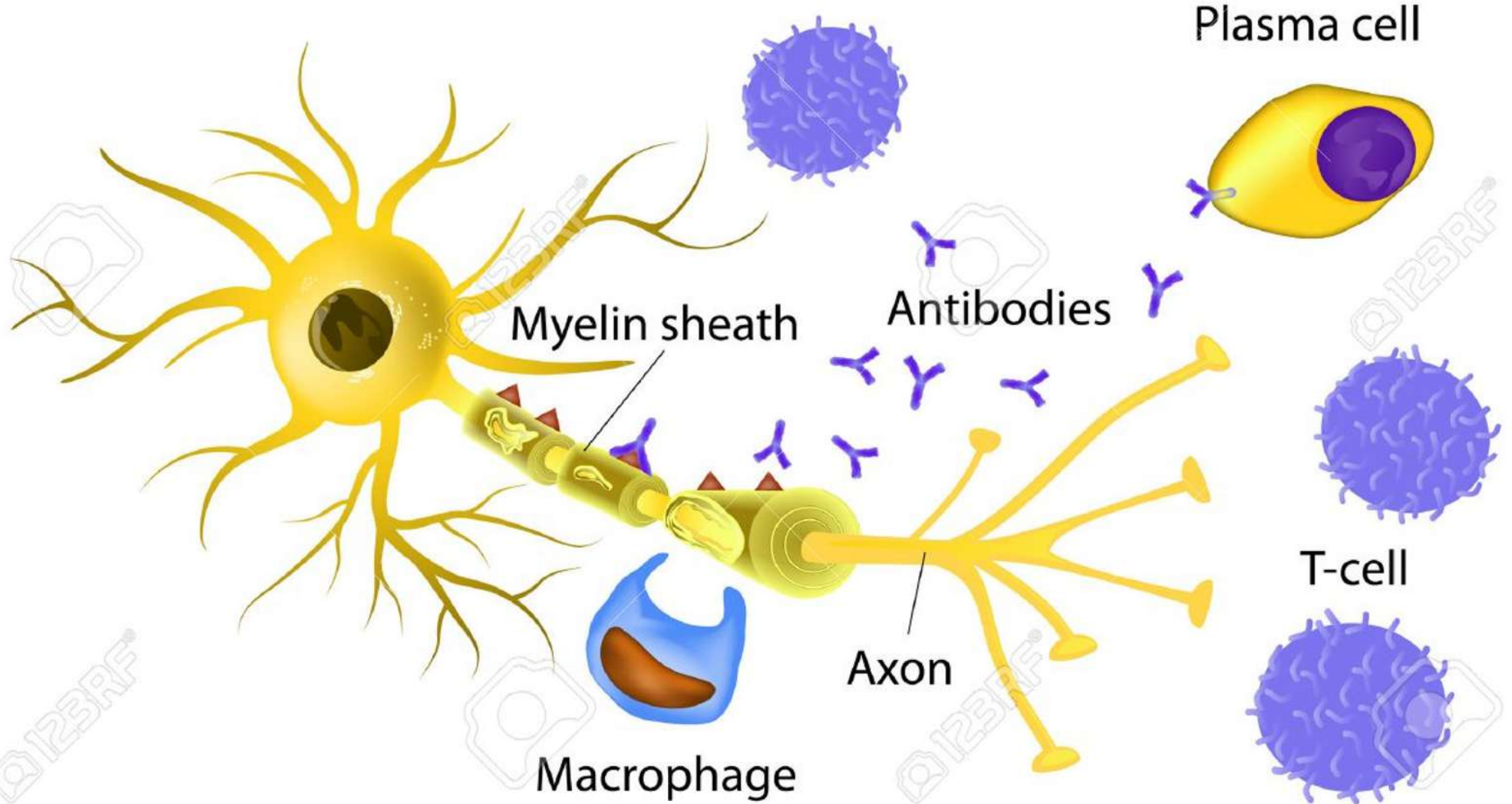
Neutrophils, Macrophages  
*Nonspecific Defense*

Killer T cell  
*Cellular Immunity*

B cell  
*Humoral Immunity*



# AUTOIMMUNE DISEASE



## CHILDHOOD

Type 1 diabetes mellitus

Autoimmune thyroid diseases

IgA deficiency

Down's syndrome

Headaches

Turner syndrome

Williams syndrome

Juvenile idiopathic arthritis

Alopecia areata

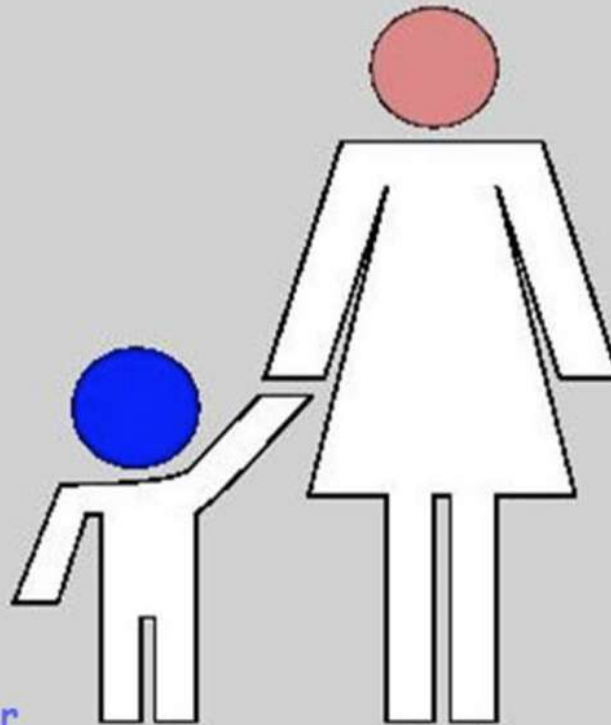
Primary sclerosing cholangitis

Autoimmune hepatitis

Epilepsy

Vitiligo

Attention deficit/hyperactivity disorder



## ADULTHOOD

Rheumatic disorders

Infertility

Frequent miscarriage

Functional GI disorders

Addison's disease

Primary biliary cirrhosis

IgA mesangial nephropathy

Primary hyperparathyroidism

Microscopic colitis

Peripheral neuropathy

Idiopathic dilated cardiomyopathy

Dementia

Depression

