ANTIGEN

Antigen:-These are the substance which when entered inside host produces antibodies with which they react specifically in an observable manner. And a substance which can be recognized by B cell and T cell receptors.

Immunogen:- substance which stimulates immune response when entered inside body. And this property is called immunogenicity.

Antigenicity:- The property of eliciting production of Abs and reacting specifically in an observable manner.

All immunogens are antigen but all antigens are not immunogen.

Attributes if antigen:-

i. Immunogenicity.
ii. Immunologically reactive.

Types of antigen:-

i. Complete antigen
ii. Hapten:-they can react with specific Abs but cannot produce immune response(Once they combine with larger molecule carrier they are immunogenic).

Haptens are of two type:

i. complex(precipitating)(polyvalent)
ii. simple(non precipitating)(univalent)

Epitope:- these are small sequence(amino acid sequence or monosaccharide sequence) possessing specific chemical structure, electric charge and steric(spatial) arrangement which is capable of sensitizing an immunocyte and reacting with its complementary site on the specific Abs and TCR.

Epitope are two types:

i. Linear
ii. Conformational

T cell recognizes linear eiptope while B cell recognize Conformational epitope.

Determinant of Antigenicity:-

Size: High molecular weight antigens are more antigenic (hemocyanin) than low molecular antigen. Some of the LMW antigens non antigenic but if they are absorbed in large molecular weight substance (like-bentonite and kaolin) they render Antigenicity. Picryl chloride, Penicillin are LMW antigens which with little Antigenicity. They are like haptens.

Chemical nature: Proteins and polysaccharides are major antigen and lipids and nucleic acid are minor as well as less antigenic. The Antigenicity depends on diversity of antigens For ex:- Proteins are more antigenic than polysaccharides as they are made up of 20 aa while polysaccharides are made up of 4 or 5 monosaccharide's.

Gelatin is non antigenic due to its structural instability.

Susceptible to tissue enzyme: The antigens which are susceptible to tissue enzymes are antigenic. Reason- the enzymatic degradation of antigen causes fragmentation of antigen resulting in breakdown of antigen in appropriate size and exposure of antigenic site. Those