

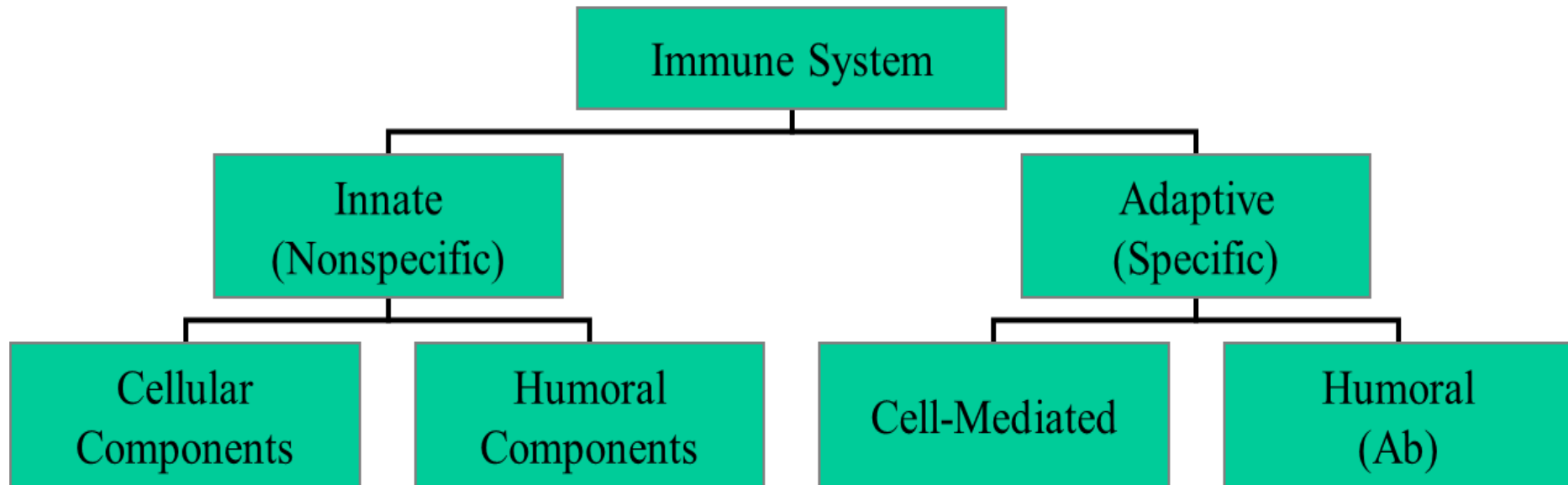


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ANTIGENS

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Overview of the Immune System



Definitions

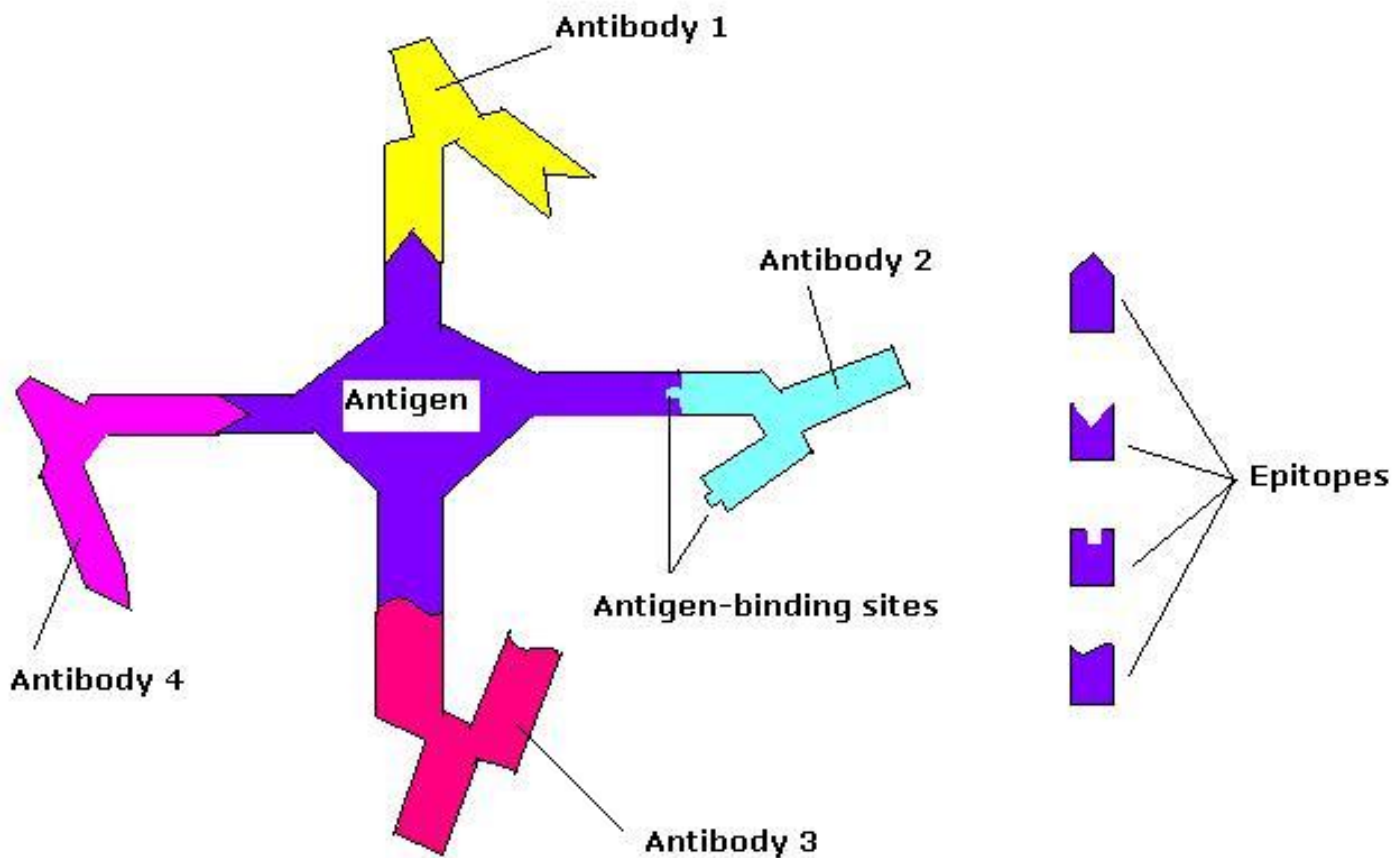
- Immunogen
- Antigen (Ag)
- Epitope or Antigenic Determinant
- Antibody (Ab)

Definitions

- **An antigen** is any foreign substance that **elicits an immune response...**
- **Immunogens** are substances that generate immune response
- **Epitope (antigenic determinant)**

Active regions of an immunogen (or antigen) that binds to antigen-specific receptors on lymphocytes or to secreted antibodies.

Epitope (antigenic determinant)





Factors Influencing Immunogenicity

Contribution of the Immunogen

- Foreignness
 - Size
 - Chemical Composition —→ **Sequence determinants**
 - Primary Structure
 - Secondary Structure
 - Tertiary Structure
 - Quarternary Structure
- Conformational determinants**

Factors Influencing Immunogenicity

Contribution of the Immunogen

- Foreignness
- Size
- Chemical Composition
- Physical Form
 - Particulate > Soluble
 - Denatured < Native

Factors Influencing Immunogenicity

Contribution of the Immunogen

- Foreignness
- Size
- Chemical Composition
- Physical Form
- Degradability
 - Ag processing by Ag Presenting Cells (APC)

Factors Influencing Immunogenicity

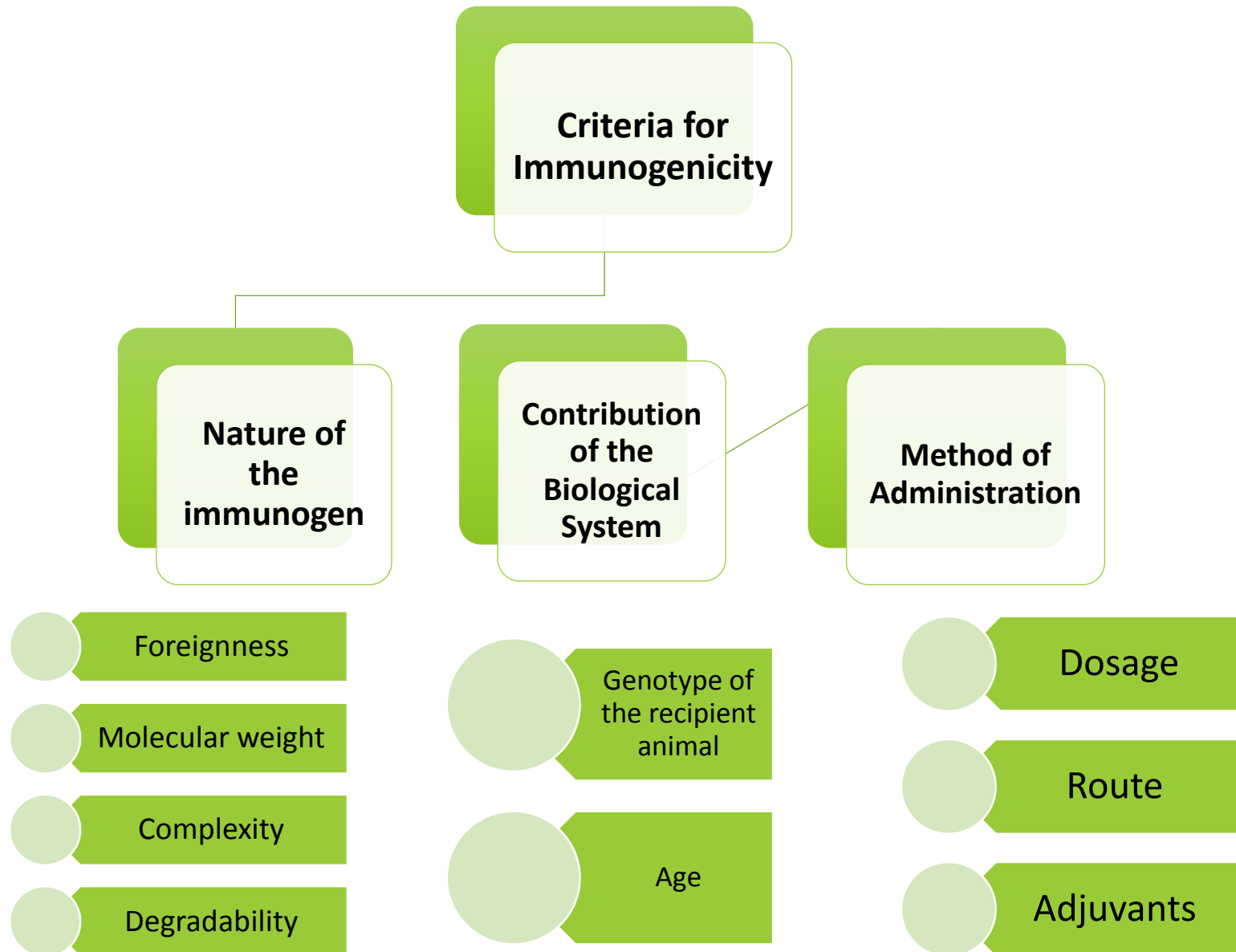
Contribution of the Biological System

- Genetics
 - Species
 - Individual
 - Responders vs Non-responders
- Age

Factors Influencing Immunogenicity

Method of Administration

- Dose
- Route
 - Subcutaneous > Intravenous > Intragastric
- Adjuvant
 - Substances that enhance an immune response to an Ag



Chemical Nature of Immunogens

- Proteins
- Polysaccharides
- Nucleic Acids
- Lipids
 - Some glycolipids and phospholipids can be immunogenic for T cells and elicit a cell mediated immune response

CHANCES OF SUCCESS:

0% I WON'T

10% I CAN'T

20% I DON'T KNOW HOW

30% I WISH I COULD

40% I WANT TO

50% I THINK I MIGHT

60% I MIGHT

70% I THINK I CAN

80% I CAN

90% I AM

100% I DID