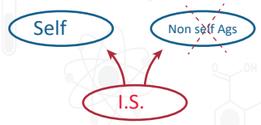
Chapter 3: Antigens

(Any foreign molecule that can stimulate I.R.)

1 Factors affecting immunogenicity

1 Foreigness ??

- The more the foreingness, the more the Ag
- I.S. Can distinguish self from Non self Ags



(Absence of I.R. # self cells =Auto tolerance)

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Autoimm. Dis.

2 Size

- The more the size, the more the Ag
- **Exceptions:-**
  - **1)** Insulin (small) → immunogenic
  - **2)** Carbon particles (Very large) → non immunogenic

3 Chemical nature

- The more the complexity, the more the Ag
- Most potent immunogen → proteins

4 Route of administration

- S.C, I.M → best in ++ IR
  (parenteral route > oral route)

5 Dosage

- Optimum dose → Ag is most immunogenic
- Very low or very high dose → tolerance (unresponsiveness)

6 Adjuvants

- Non Specific potentiators of I.R. → ++ IR to Ag
- **e.g.** Aluminium OH → added to diphtheria toxoid and tetanus toxoid → used for immunization

Immunity (3)

2 Ag determinant (epitope)

Foreign → Ag

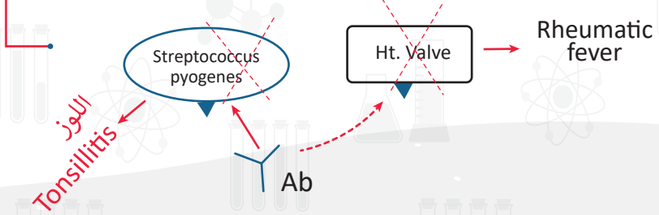
Ag determinant
(epitope)

Very small part of Ag
(4-5 aa or M.S. residues)

Determine specficity of Ag

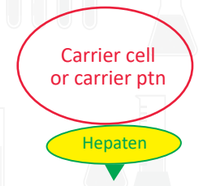
1 Ag > 1 epitope

2 Diff. Ags → have similar epitopes
→ Heterophil (cross reacting) Ags



3 ما الفرق بين الاب الكبير والابن الصغير في رؤية الشارع من البالكونة؟

large
foreign molecule
that can stimulate
IR directly



Small M. wt.
Substance that
Can't stimulate IR
alone → but it
Can stimulate IR
if it is Carried
(become immunogenic)
e.g. drugs
(penicillin)

Both are antigens

- All immunogens are Ags ✓
- All Ags are immunogens ✗
- Hapten is Non immunogenic Ag ✓