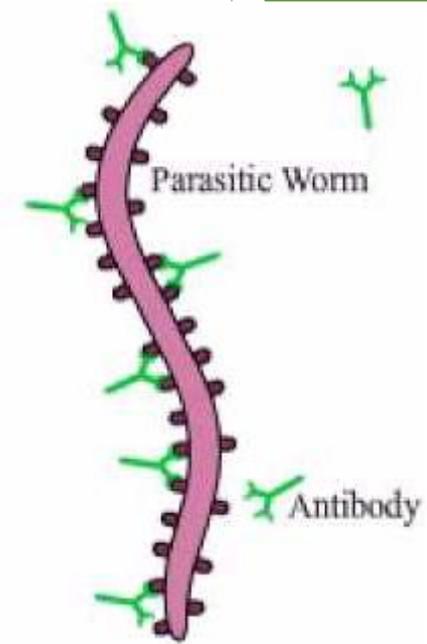
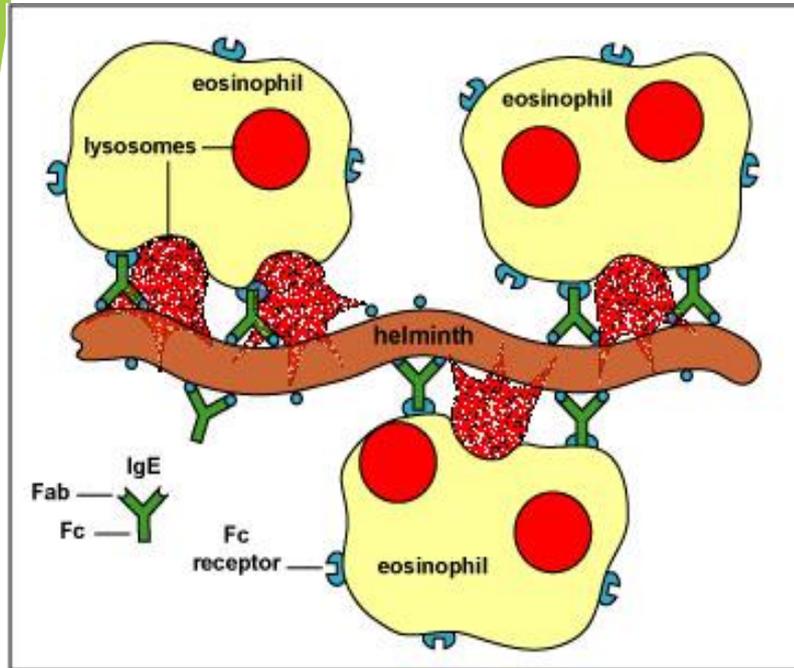
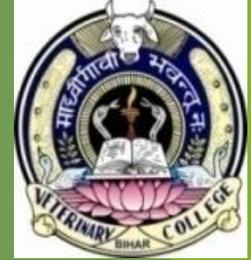




Immunity against Parasitic Infections/Infestations



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Immunity Against Parasitic Infections/ Infestations

Infection:

Usually used to denote internal parasite infections.

e.g. *Fasciola hepatica* infection

Ascaridia galli infection

Immunity Against Parasitic Infections/ Infestation

Infestation:

Usually used to denote parasitism by the external parasite .

e.g. Mite infestation

Tick infestation

lice infestation

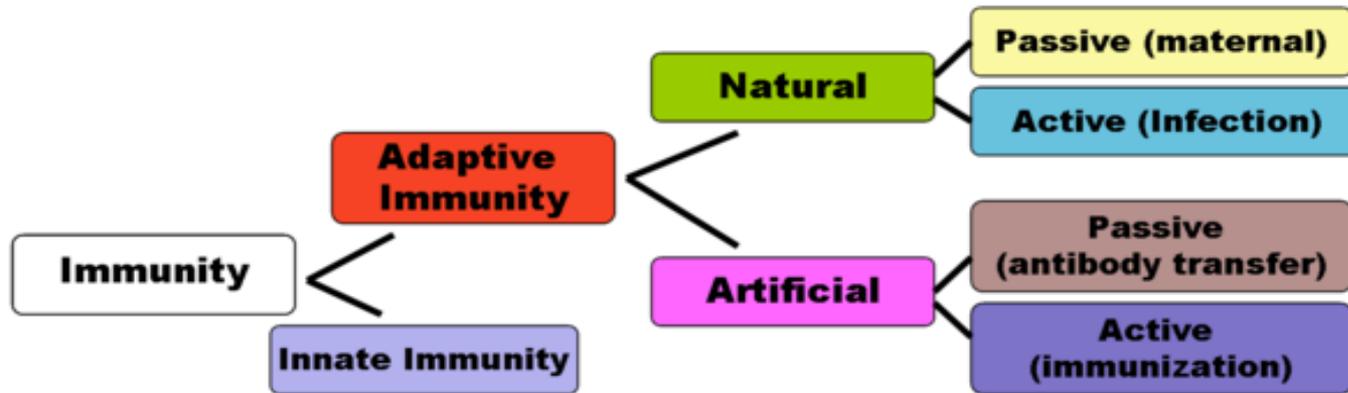
Immunity Against Parasitic Infections/ Infestations

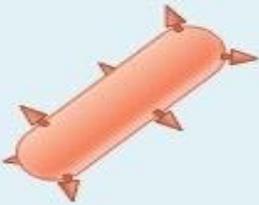
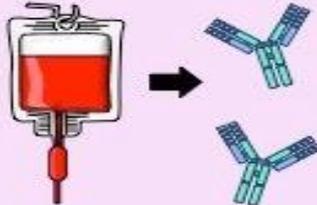
Immunity:

Capability of host to protect himself against the entry or invasion of organisms or parasites.

Immunity Against Parasitic Infections/ Infestations

Classification of immunity :-



| ACTIVE IMMUNITY | | PASSIVE IMMUNITY | |
|--|--|---|--|
| Natural | Artificial | Natural | Artificial |
|  <p>Infection</p> |  <p>Vaccination</p> |  <p>Maternal antibodies</p> |  <p>Monoclonal antibodies</p> |

Immunity Against Parasitic Infections/ Infestations

Innate immunity-

- Naturally acquired immunity present in the body.
- It provides first line of defence from infection in a non-specific manner.
- It is of non-immunological or immunological in origin.

Innate Immunity

- **Non-immunological origin -**

- Host resistance:**

- **Parasites can not develop in the hosts other than their usual hosts.**

- e.g. *Toxocara canis* found in dog but not found in cattle .**

Innate Immunity

- **Non-immunological origin**

Age resistance:

- ✓ Generally adult animals are resistance to parasitic infections in comparison to young.

e.g. *Toxocara vitulorum* infection mostly found in buffalo calves

Eimeria spp. (Coccidian parasites) are mostly affect chicks.

- ✓ But in some parasitic infections, the young animals are resistant while the adults are susceptible.

e.g. *Babesia* and *Anaplasma* infection mostly occurs in adults.

Innate Immunity

- **Non-immunological origin**

- Breed resistance:**

- **Desi breed are more resistant to certain parasitic infections in comparison to other breeds**

- e.g. N' dama cattle (West African humpless cattle) is resistant to *Trypanosoma* infections. Hence k/a Trypanotolerant breed.**

- Desi cattle (*Bos indicus*) is usually resistant to tick infestation.**

Innate Immunity

- **Non-immunological origin -**

Geographical distribution:

- *Trypanosoma cruzi* infection is not found in India due to non-availability of Vector (Triatomid bugs).

Innate Immunity

- **Non-immunological origin -**

Natural barriers:

Saliva, tears, mucus, skin and mucous membrane act as natural barriers because it prevent parasitic infections.

Innate Immunity

○ Non-immunological origin -

Feeding habit:

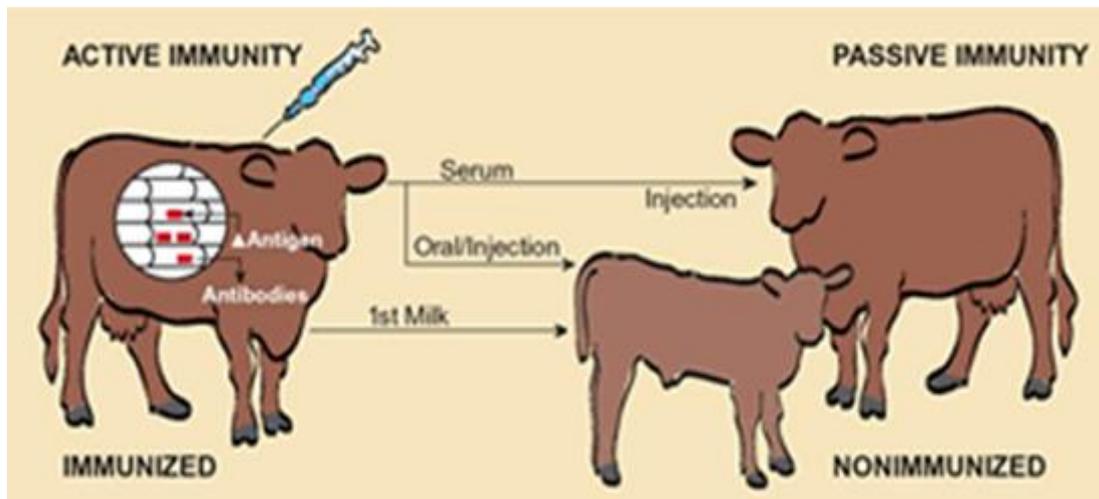
- Amphistome infections do not occur in dogs because of carnivorous habit.
- Ruminates do not feed fish so *Opisthorchis sinensis* infection not found in ruminates.

Immunity against parasitic infections/infestations

- ▶ **Acquired immunity-** It is acquired by animal as a result of previous exposure of parasitic infection or by artificial means (vaccination etc.). It is two types-

(a) Active immunity

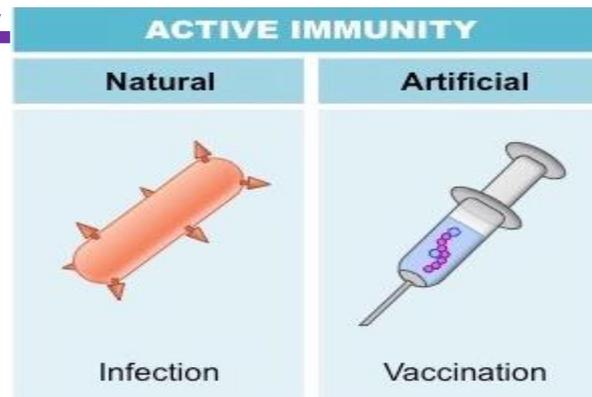
(b) Passive immunity



Immunity against parasitic infections/infestations

(a) **Active immunity** – It is long duration immunity which occurs as a result of the administration of live infection (an antigen) or dead culture or culture filtrate.

e.g. **Premunity, sterile immunity and autoimmunity** are the examples of **active immunity**.



Immunity against parasitic Infections/infestations

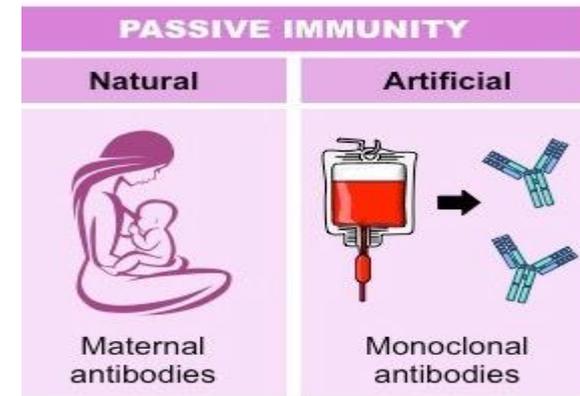
(b) **Passive immunity-** It is short time immunity occurs due to passive transfer of immunity i.e. readymade antibodies from the immunized animal to unimmunised.

Immunity against parasitic infections/infestations

(b) **Passive immunity-**

e.g. Foetus in the womb of mother and also new born receive immunity through colostrums or milk.

Serum of hyperimmune animal is injected to a healthy animal for immunization. e.g. Antitetanus serum (ATS) contains readymade globulin against tetanus causing bacteria.



Immunity against parasitic infections/infestations

Humoral immunity :-

- **It is antibody mediated immunity in which B-lymphocytes play major role.**
 - **T- helper cells (Th1 &Th2) have also play role in this immunity.**
- e.g. Haemoprotozoan infections.**

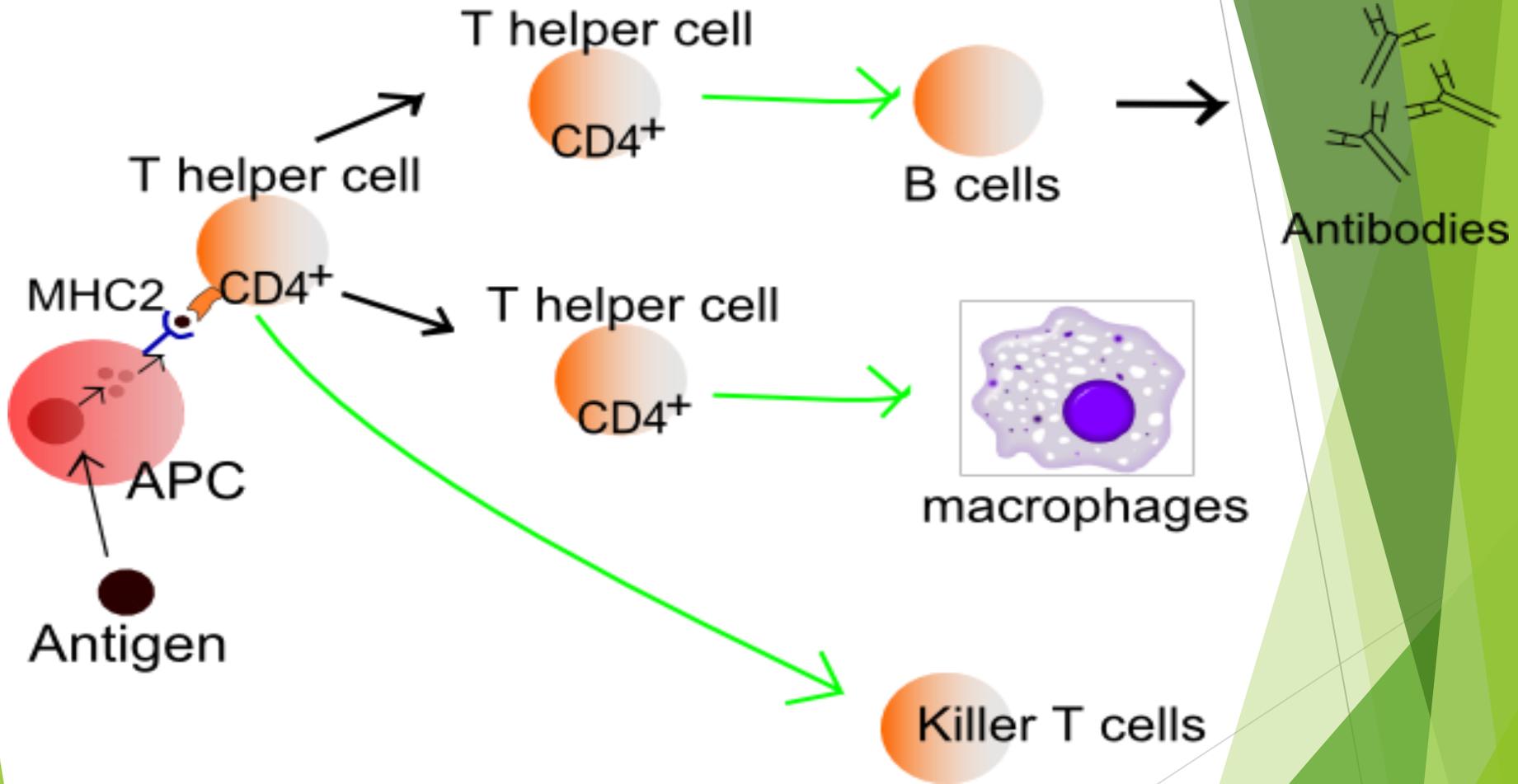
Immunity against parasitic infections/infestation

Humoral immunity:-

Antibodies (Abs) act in any of the following ways-

- I. Abs bind to the epitopes of the antigens (Ags) resulting in neutralization of parasites.**
- II. Abs cover certain sites on the surface of parasite which results inhibition of penetration to the host cells as well as feed intake.**
- III. Abs cause lysis of parasites in presence of complement.**
- IV. Abs help to induce Type-I hypersensitivity reaction**

Mechanism of Immune system



THANK U