

## *Haemophilus* .

*Haemophilus* is Gram-negative aerobic coccobacillus bacteria .

*Haemophilus* means Blood loving ; it's depend on blood for growth .

*Haemophilus* is from normal flora [respiratory flora] , it died rapidly outside the body [ takes 30 minute to die] .

### *Haemophilus influenzae*.

This bacteria causes localized infect and the disease mostly happens in children between 6 months to 3-5 years .

Growth Factors [from RBC] :

1. V-X factor .
- 2 . Hematin ( heme ) is necessary for bacterial cytochrome .
- 3 . NAD<sup>+</sup> is required for bacterial metabolic activity .

Virulence factors :

1. Polysaccharide capsule : it composed of polyribitol ribose phosphate , the capsule has 6 types [a,b,c,d,e] , of these , type b is commonly associated with invasive *haemophilus influenzae* disease such as meningitis , epiglottitis[Sore Throat , Brochopneumonia] , septic arthritis , sepsis[Septicemia] , Otitis Media , Sinusitis and Conjunctivitis.

### Culturing

Since it's blood loving we culture it on Blood agar or chocolate agar [Breaking RBC by heat to get the Growth Factors] .

Vaccination :

It's done by Hib vaccine [Haemophilus b capsule] conjugated with mutant *Diphtheria* toxin protein , a *Nisseria meningitides* outer membrane protein or tetanus toxoid to activate the T-lymphocytes and antibodies against the B capsule .

Recently , the Hib is given to children along with DTP and polio vaccines at ages 2 , 4 , 6 and 15-18 months .