3. GENUS NEISSERIA – MEDICAL RELEVANT BACTERIA

Genus	Neisseria		
Species	Contain **two pathogenic** species (GC and MC), but also contain **many Flora-commensals species** of **upper respiratory +/or GI tract** **::: Obligate Aerobe :::**		
	***Neisseria* meningitides**	***Neisseria* gonorrhoeae**	***Moraxella* catarrhalis**
Distinguishing Features (We do in Lab)	**1. Carbohydrate fermentation: (CTA slant)** **- Glu (+) – Yellow (acid+)** **- Mal (+) – Yellow(..)** - Lac (-) - Suc (-) **2. Oxidase (+), Cat(+)** **3. Growth on Mediums :** **- CA, BA**	**1. Carbohydrate fermentation (CTA slant)** **- Glu (+) – Yellow (acid+)** - Mal (-) - Lac (-) - Suc (-) **2. Oxidase (+), Cat(+)** **3. Growth on Mediums :** **- CA**	**1. Carbohydrate fermentation: (CTA slant)** - **All (-)** **2. Oxidase (+), Cat(+)-??** **3. Growth on Mediums :** **- CA, BA, NA**
Transmission and/or Inhabitant	**1. Nasopharynx flora in (5-15%) healthy ppl** **2. Throat flora in (5-15%) Healthy ppl** **3. Aerosol inhalation.**	**1. Not a flora, a primary pathogen.** **2. Transmitted via mucosal contact** (Sexual contact usually)	**1. Oral Flora**
Diseases caused	**1. Meningitis** **2. Arthritis** **3. Osteomyelitis** **4. Percarditis** **5. Pneumonia**	**Males: (gram stain is diagnostic)** **1. Acute Urethritis** **2. PID** **Females: (female coz have many GNDC flora so hard to tell)** **1. Endocervix infection** **2. PID**	**1. Otitis media** **2. sinusitis** **3. bronchitis** **4. pneumonia**
Clinical Specimen and Laboratory Identification (In Hospital)	**1. CSF** **2. Blood** **3. Swab (skin lesions and nasopharynx)** --- **→ GNDC** **→ Oxidase +** **→ CTA Slant** **→ Direct Ag test for Capsule polysaccharide.**	**1. Swab from site of infection- CO2, 35 degree** **VCN: inhibit Neisseria non-pathogenic flora** --- **Male: - urethral exudate** **→ GNDC** **→ Oxidase +** **Female: genital tract has many flora look like GC** **→ GNDC (not easily seen)** **→ Oxidase +** **→ Further culture** **→ CTA** **→ Fluorescent Ab test**	**1. Sputum** **2. Sinus biopsy** **3. Middle ear sample** --- **→ GNDC** **→ Oxidase +** **→ CTA Slant**

<table>
<tr><td></td><td></td><td>→ Nucleic acid Probe</td><td></td></tr>
<tr><td rowspan="3">Metabolic Properties and Growth Condition</td><td>1. <u>Less Fastidious</u>:
Grows on <u>BA, CA</u> plate
2. <u>Incubate in increased CO2, 35C</u></td><td>1. <u>More Fastidious</u>:
Grows on <u>CA</u> plate
2. <u>Incubate in increased CO2, 35C</u></td><td>1. <u>Least fastidious of the 3:</u>
<u>grows on</u> <u>NA, CA, BA</u>
2. 35C - <u>DO NOT require increased CO2.</u></td></tr>
<tr><td colspan="3">VCN : <u>GC+</u> <u>MC+</u> <u>M.cat -</u></td></tr>
<tr><td colspan="3"><u>Genus Properties</u>
<u>(No idea of facultative anaerobe or Obligate aerobe)</u>
1. Oxidase Positive (dark pink/purple)
2. <u>Catalase Positive</u></td></tr>
<tr><td>Morphology General to Genus</td><td colspan="3">1. <u>Gram Negative Cocci</u>
2. <u>Cells tend to diplococci</u>
3. <u>No flagella</u>
4. <u>Non-motile</u>
5. <u>None-spore forming</u>
6. <u>Grey to white on CA and BA agar</u></td></tr>
<tr><td>OTHERS</td><td>1. <u>Have Capsule</u> –
Virulence factor.</td><td></td><td></td></tr>
<tr><td>Comments</td><td>Sub-divided into serological groups based on presence of
- Capsular or
- Cell wall antigen
Most common MC infection is by <u>serotype B</u></td><td></td><td></td></tr>
<tr><td></td><td colspan="3">Neisseria’s natural habitat is the mucous membranes of warm-blooded animals
CTA slant detects Acid from sugar breakdown. Very sensitive to acid!</td></tr>
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