GPBs – Branching GPB

“Hi everyone, welcome to the IDIOTS podcast, that’s Infectious Disease Insight Of Two Specialists, I’m Jame, that’s Callum, and we’re going to tell you everything you need to know about Infectious disease, Callum how you doing?”

* What they are
* What they do
* How they’re classified
* How to kill them

**What they are**

* Form branches under the microscope (looks like the underground)

**How they’re classified (i.e. how Jame classifies them)**

* Nonbranching
  + Bacillus
  + Corynebacterium
  + Listeria
  + Lactobacillus
  + Erysipelothrix
* Branching
  + **Nocardia (Acid variable)**
  + **Actinomyces (Non-acid fast)**
* Mycobacteria (Acid-fast; their own thing)

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| ID | Nocardia   * 85 spp. (40 clinically relevant) * Commonest causes of Nocardiosis:   + Nocardia nova   + Nocardia farcinica   + Nocardia cyriacigeorgica   + Nocardia brasiliensis   + Nocardia abscessus * Named for Edmond Nocard, a 19th-C vet/biologist |
| Site | * Soil 🡪 skin (trauma) or lung if inhaled * Oral microbiota |
| Risk Factors | * Skin trauma with soil contamination * Abnormal lung tissue * Weakened immunity (e.g. EtOH, HIV, transplant) |
| Clinical syndromes | * SSTI * Endocarditis * Slow-onset LRTI 🡪 pleuritis * Lung abscess 🡪 33% migrate to brain |
| Lab ID | Microbiology   * Branching GPB * Delicate thin filaments   Cx   * 14d * Nutrient Agar |
| Rx | * Cotrim * Also: Amikacin, Meropenem, Linezolid * Duration: 6-12 months (longer if immunosuppressed, brain abscess etc.). |

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| ID | Actinomyces:   * Israelii * Gerencseriae (named for [bacteriologist](https://en.wikipedia.org/wiki/Bacteriologist) Mary Ann Gerencser) * Meyeri (CNS Abscess) * Viscosus (Dental carie) * Naeslundii * Odondolyticus |
| Site | * Mouth * GIT * Vagina |
| Risk Factors | * Tropical climate * Malnutrition * Poor oral hygiene/trauma |
| Clinical syndromes | * SSTI   + Actinomycetoma (DDx: Eumycetoma): Tropical Actinomyces spp.   + Actinomycosis: Normally A.israelii; slow-growing abscess with tract formation. * Thoracic infection (Pleural ‘lump’) * Pelvic (IUCD colonisation 🡪 pelvis) |
| Lab ID | Microbiology   * Branching filaments * Nonsporing, nonmotile   Cx   * 3-7d * AnO / MicroO2 * Actino plate   Colony   * ‘Sulfur granule’ (DDx: Nocardia) * ‘Molar tooth’ appearance = A.israelii/gerencseriae |
| Rx | * Debride tissue * Remove IUCD |

How to tell between Nocardia and Actinomyces:

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|  | Growing conditions | Acid-Fast |
| ActiNO | AnO | No |
| nOcardia | O2 | Variable (by spp) |