

علم الأحياء الدقيقة

Microbiology

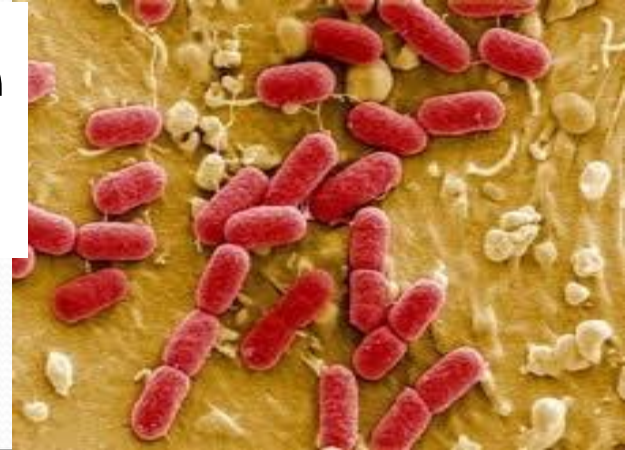
مقدمة

Introduction



د. تركي محمد الداود

مكتب ٢ ب ٤٥

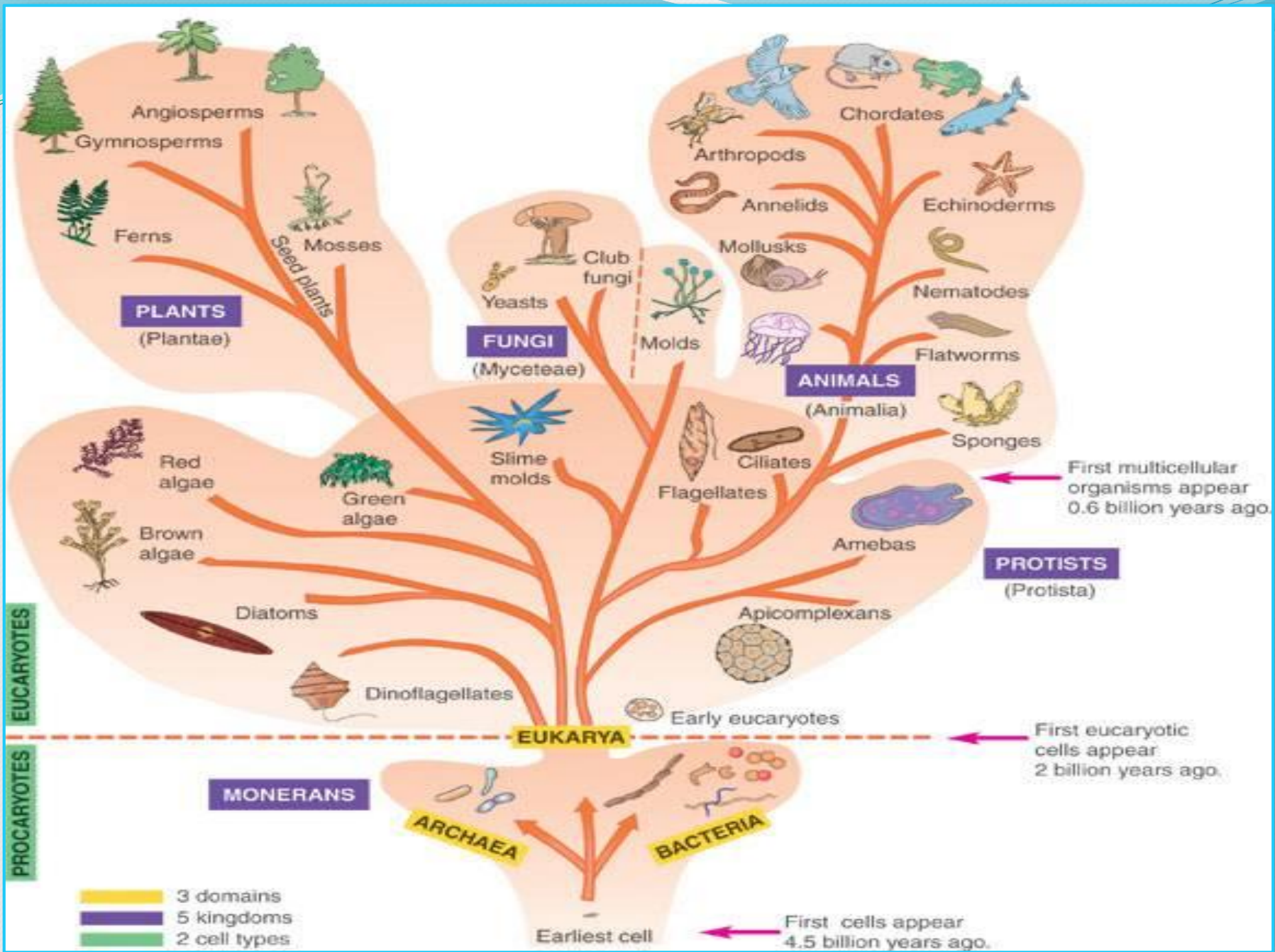


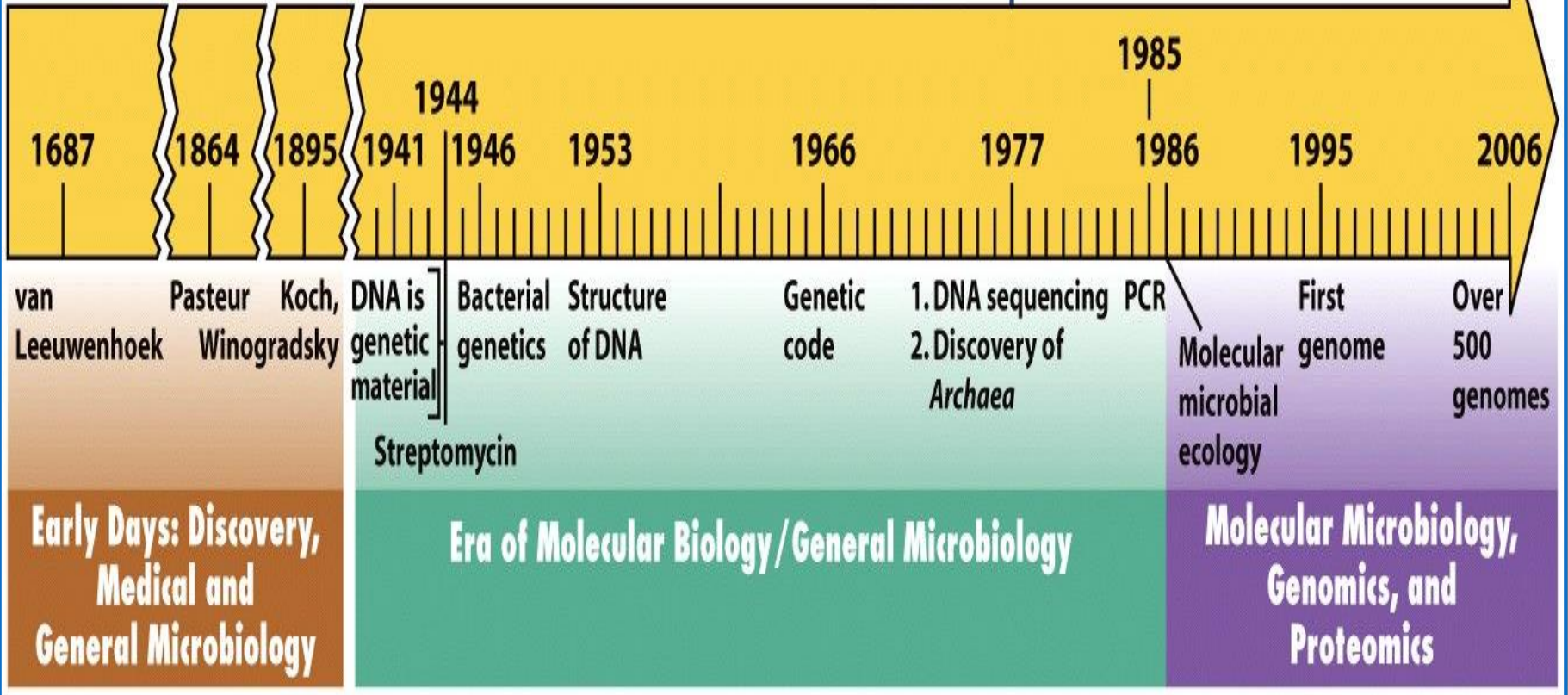
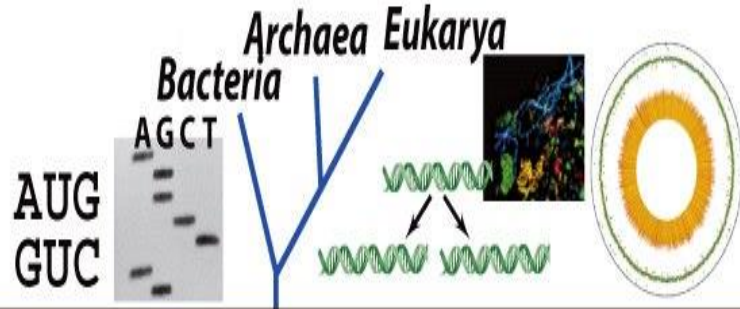
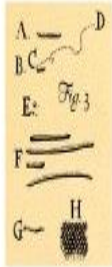


# **GENERAL MICROBIOLOGY**

**MBIO 140**

**Dr Abdelnasser Ibrahim**





# **Microbiology: the study of microorganisms**

**Microorganisms** are single-celled microscopic organisms and viruses.

## **What is microbiology all about?**

Microbiology is **about cells and how they work**, especially the **bacteria**, a large group of cells of enormous basic and practical importance.



Nordert Fleming




(a)

(b)

(c)

(d)

- 
- Microbiology is about **diversity** and **evolution**, about how different kinds of microorganisms arose and why.
  - Microorganisms vs macroorganisms. The cells of macroorganisms such as plants and animals are unable to live alone in nature and exist only as parts of multicellular structures.

# Microbiology

- The science of microbiology revolves around two themes:
  - Understanding basic life processes.
  - Applying our understanding of microbiology for the benefit of humankind.



# Discovery Path of Microbiology

- The nineteenth century.
- The Historical Roots of Microbiology: Hooke, van Leeuwenhoek, and Cohn- the invention of the microscope.
  - **Robert Hooke** (1635–1703).
  - **Antoni van Leeuwenhoek** (1632–1723).

# Discovery Path of Microbiology



# Discovery Path of Microbiology

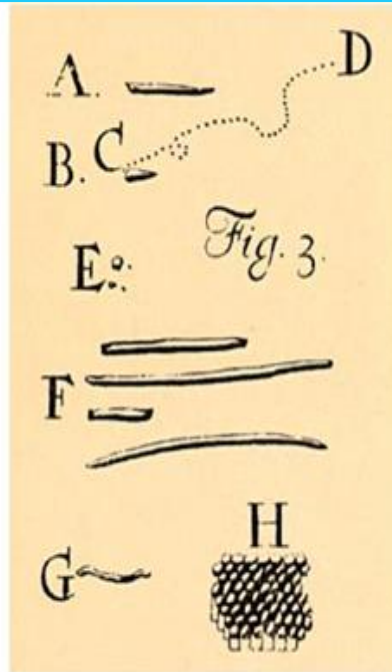
- In **1684**, van **Leeuwenhoek** used extremely simple microscopes of his own construction.
- He discovered bacteria in **1676** while studying pepper–water infusions.
- He named them “**wee animalcules**”.
- The progress was slow that it took 150 years.

# The van Leeuwenhoek microscope

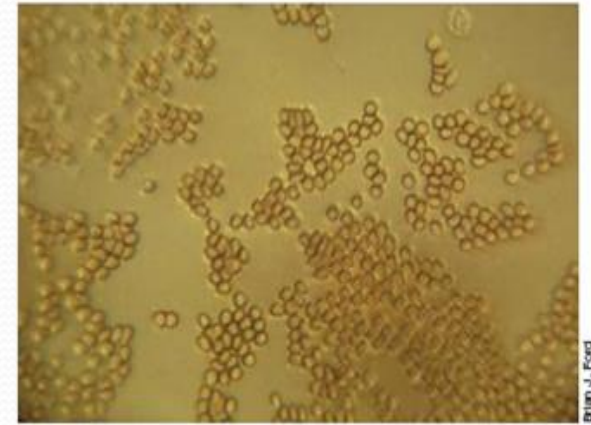


(a)

T. D. Brook



(b)



(c)

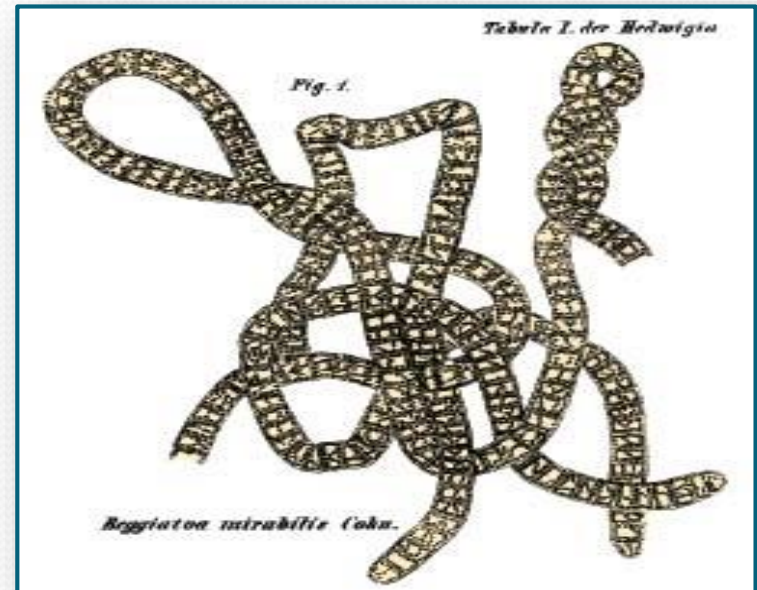
Blain, J., Ford

# Discovery Path of Microbiology

- **19<sup>th</sup> Century:** improved microscopes become widely distributed.
- **In the mid- to late nineteenth century** major advances were made in the new science of microbiology.
- The French chemist **Louis Pasteur** and the German physician **Robert Koch**.
- Ferdinand Cohn (**1828–1898**)- the founder of the field we now call “*Bacteriology*”.

# Discovery Path of Microbiology

- Cohn and resistance in bacteria- **endospores**.
- Described the life cycle of the endospore-forming bacterium *Bacillus*, and the **vegetative** cells of *Bacillus* were killed by boiling.



# QUESTIONS??

