

Lecture Notes for INF281 Basics of Bioinformatics Sequence Analysis

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Part I

1 Introduction

1.1 Introduction to Molecular Biology

Molecular biology is the study of biology focusing on organisms and cells at the molecular level.

Five essential facts about cells

1. Two primary types of cells - eukaryotes and prokaryotes

- Eukaryote: animals & plants
- Prokaryote: bacteria & archaea

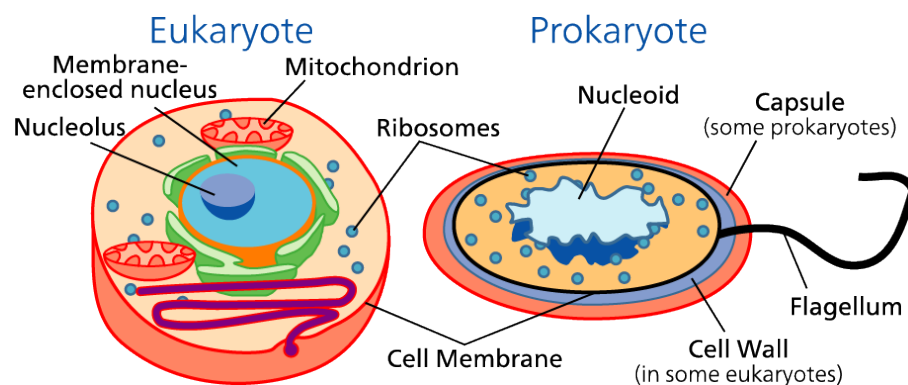


Figure 1.1: Eukaryotic and prokaryotic cells (source: Wikipedia)

2. Cell size - around 1 to 100 micrometers

- Cell Size and Scale: <http://learn.genetics.utah.edu/content/cells/scale>

3. The number of cells

- Prokaryotes: 1 cell
- Human: Estimate of 15 trillion cells

4. An animal cell and cell organelles

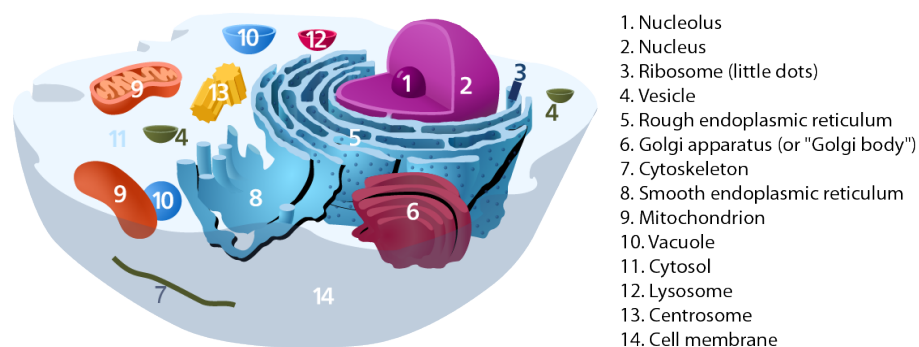


Figure 1.2: An animal cell and organelles (source: Kelvinsong, Wikipedia)

5. Cellular processes

- Cell growth, cell development, cell signaling,
- Example: <http://www.nature.com/nrg/multimedia/rnai>