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

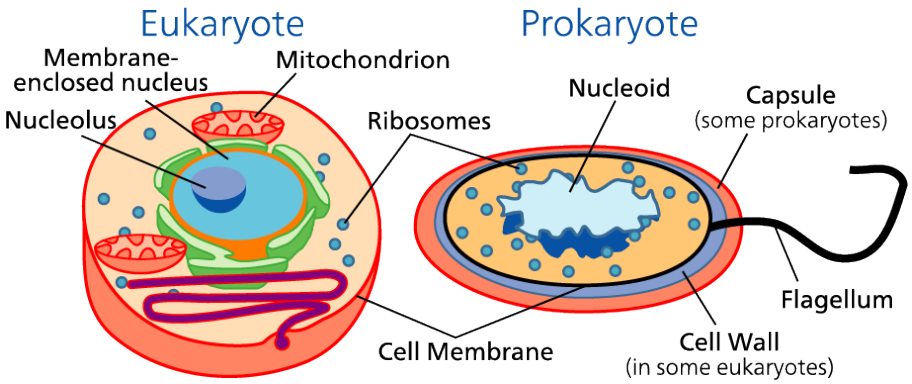

Figure 1.1: Eukaryotic and prokaryotic cells (source: Wikipeida)

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**

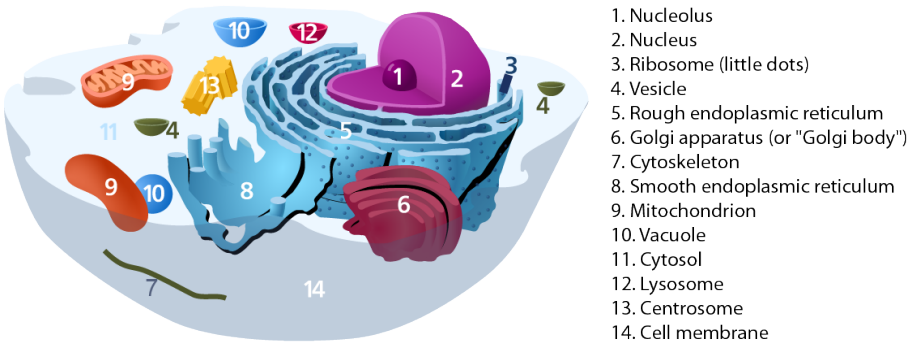

Figure 1.2: An animal cell and organelles (source: Kelvinsong, Wikipedia)

5. Cellular processes

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