

Chapter 12 - Stem Cell Biotechnology

12.1 The nature of stem cells

- A. Cellular differentiation
 - 1. definition
 - 2. process
- B. Adult stem cells
- C. Types of stem cells
 - 1. totipotent
 - 2. pluripotent
 - a. blastocyst
 - b. embryonic stem cells
 - 3. multipotent
- D. History
 - 1. first isolation
 - 2. adult stem cells
 - a. successes
 - b. predictions
- E. Other sources

12.2 Stem cell cultivation

- A. Requirements
 - 1. suitable media
 - 2. substratum
- B. Growth
- C. Challenge
- D. Production requirements
 - 1. GMP
- E. Transcription factors

12.3 Human-animal embryos

- A. Why
- B. Solution
- C. Process
- D. Use

12.4 Commercial potential for stem cell therapies

- A. Success
- B. Money