Reproduction in Lower and Higher Animals



2

Can you recall?

- Enlist the various life processes. Name the life process which is responsible for continuation of the human race.
- What are the common methods of reproduction in the unicellular organisms like Englena, Amoeba and Paramoecium?
- What type of asexual reproduction occurs in Hydra?
- 4. What are the different methods of reproduction in animals?

We know that reproduction is one of the major life processes of any living organism. It helps in maintaining the continuity of the species. Reproduction is defined as the biological process of formation of new life forms from pre-existing similar life. It thus becomes a vital process which enables the species to survive over a long period, even though the individuals or organisms live naturally for a limited period of time i.e. their life span. In this chapter, we will learn about the various methods of reproduction in animals the human reproductive system, gametogenesis and fertilization, early embryology, parturition and reproductive health.

Reproduction in animals occurs mainly by two methods i.e. asexual and sexual.

2.1 Asexual Reproduction in animals:

It is a common method among lower animals. It does not involve meiosis nor the gamete formation and fusion. The formation of progeny is by a single parent only and does not involve both the sexes, so it is called asexual reproduction. The progeny or daughter cells are genetically identical to the single parent and are also referred to as clones. The lower animals reproduce asexually by gemmule formation and budding.

Gemmule Formation:

Gentmule is an internal bud formed only in sponges. It has asexually produced mass or aggregation of dormant cells, the archaeocytes capable of developing into a new organism. The archaeocytes get coated by a thick resistant layer of secretion by amoebocytes. The gentmule is formed to overcome unfavourable conditions. On return of favourable conditions of water and temperature, the gentmules hatch and develop into a new individual. e.g. Spongilla.

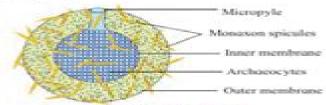


Fig. 2.1: Gemmule

Budding:

It is a simple method of asexual reproduction normally occuring in favourable conditions. It is seen in a variety of animals like coelenterates (Hydra and corals) and in some colonial ascidians. In Hydra, a small outgrowth (bud) is produced towards the basal end of the body.



Fig. 2.2 : Budding in Hydra

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Stem Cells in Human Reproduction Carlos Simón, Antonio Pellicer, 2009-09-18 Following a successful first edition this new book updates the revolutionary advances in stem cell science that may potentially impact human reproductive medicine. The contents cover the production and regeneration of female and male germ cells trophoblasts and endometrium from human embryonic and adult stem cells New developments in hESC d. *Catalog, Educational Motion Pictures*, 1980

Handbook of Stem Cells, Two-Volume Set Robert Lanza, Catherine Verfaillie, Irving Weissman, Michael D. West, Helen Blau, John Gearhart, Brigid Hogan, Douglas Melton, Malcolm Moore, Roger Pedersen, E. Donnall Thomas, James A. Thomson, 2004-10-05 New discoveries in the field of stem cell research have frequently appeared in the news and in scientific literature Research in this area promises to lead to new therapies for cancer heart disease diabetes and a wide variety of other diseases. This two volume reference integrates this exciting area of biology combining the prerequisites for a general understanding of adult and embryonic stem cells the tools methods and experimental protocols needed to study and characterize stem cells and progenitor populations as well as a presentation by the world's experts of what is currently known about each specific organ system The editors of the Handbook of Stem Cells include Robert Lanza Helen Blau John Gearhart Brigid Hogan Douglas Melton Malcolm Moore Roger Pedersen E Donnall Thomas James Thomson Catherine Verfaillie Irving Weissman and Michael West The Editorial Board includes W French Anderson Peter Andrews Anthony Atala Jose Cibelli Giulio Cossu Robert Edwards Martin Evans Elaine Fuchs Margaret Fuller Fred Gage Richard Gardner Margaret Goodell Ronald Green William Haseltine Joseph Itskovitz Eldor Rudolf Jaenisch Ihor Lemischka Dame Anne McLaren Richard Mulligan Stuart Orkin Martin Pera Benjamin Reubinoff Janet Rossant Hans Scholer Austin Smith Evan Snyder Davor Solter Alan Trounson and Leonard Zon This comprehensive set should be a much needed addition to the library of students and researchers alike Provides comprehensive coverage on this highly topical subject Contains contributions by the foremost authorities and premiere names in the field of stem cell research The accompanying CD ROM includes over 250 color figures

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