**Dr. Mrs. S. Vairamani M.Sc., M.Ed., M.Phil., Ph.D., (Zoo)., Ph.D.,(Edu).,**

**Assistant Professor of Zoology**

**D.G.G.A.for Women, Mayiladuthurai**

[**babavairamani@gmail.com**](mailto:babavairamani@gmail.com) **9486386923**

**Blastula and blastulation**

* **1. Embryology - the science dealing with the embryo and its development**
* **2. EMBRYOGENY/EMBRYOGENESIS - the development of the embryo**
* **3. EMBRYO - the juvenile stage of an animal while it is contained in the egg (within the egg membranes) or in the maternal body**
* **4. Types of eggs based on the amount of yolk they contain:**
  + **i. MICROLECITHAL (OLIGOLECITHAL) - little yolk present (amphioxus, marsupial and placental mammals)**
  + **ii. MESOLECITHAL - moderate amounts of yolk present (lamprey, sturgeon, lungfish, and amphibians)**

**iii.. MACROLECITHAL (POLYLECITHAL) - large amounts of yolk present (hagfish, sharks, rays, teleost fish, reptiles, birds, and monotreme mammals)**

**5. Types of eggs based on how the yolk is distributed in it:**

**The pole where the yolk is concentrated is called vegetalpole, the opposite end (with nucleus) is the animal pole.**

1. **Isolecithal (homolecithal) - the yolk is diffused throughout the egg (true for microlecithal eggs) microscopic eggs of mammals, amphioxus**
2. **Telolecithal - the yolk is concentrated towards one side of the egg (true for mesolecithal and macrolecithal eggs) : fishes, reptiles amphibians, birds**

* **Embryology: Embryogenesis and Organogenesis**
* **Embryogenesis – development of primary germ layers and their locations Organogenesis – formation of the different organs**

**Stages of Embryogenesis**

**Fertilization zygote cleavage**

**Blastulation Gastrulation Neurulation**

**organ formation**

**Blastulation and types of Blastula**

**Blastula**

* **During cleavage, a number of cells are prouced to form a big ball of blastomeres. This stage afer cleavage is said to be blastula and the process of blastula formation**

**is called asBlastualtion**

**Blastulation:**

* **The development of blastula is blastulation**
* **As the cleavage is going on, a central cavity develops among the blastomeres. This cavity is called blastocoel**
* **It begins to develop from the four cell stage**
* **It is filled with a gelatinous fluid called blastocoel jelly**
* **This jelly gradually absorbs water from athe surrounding medium and the cavity increases in its volume**
* **The embryo in this stage is called Blastula**

**Blastula**

* **Cleavage produces an embryonic stage is called Blastula**
* **It is developed from the Zygote**
* **It is more or less spherical in shape with a cavity inside called Blastocoel**
* **It is formed of more than 200 cells**
* **The cells are arranged in layer around the cavity. This layer of cells is called blastoderm**
* **The blastoderm is formed of two ypes of cells, namley micromeres and macromeres**
* **The micromeres are situated at the animal pole and the macromeres are at the vegetal pole**
* **Hence the blastocoel is eccentric and not central**

**Types of Blastula**

**Blastula is of three types. They are**

1. **Coeloblastula**
2. **Discoblastula**
3. **Blastocyst**

**1. Coeloblastula**

**As the blastula is a hollow sphere, it is called Coeloblastula**

**It is spehrical in shape**

**It has a central blastocoel**

**The cavity is surrounded by one or more layers of blastomeres**

**Ex: Frog, amphioxus**

**2. Discoblastula**

**It is disc shaped.**

**The blastocoel is roofed over by one or more layers of blastomeres**

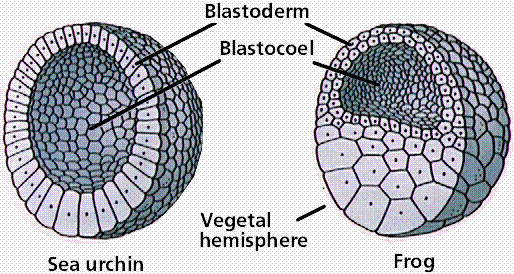
**EX: Birds, Fishes, Reptiles, etc.,**

1. **Blastocyst**

**It is in the form of a cyst**

**Ex: Mammals**

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