

MERISTEM AND MERISTEMATIC TISSUES

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Meristem (Gr. **Meristo - divisible**) is defined as a group of young and undifferentiated cells possessing the property of **Active** cell division.

The Meristems are also called **Formative tissues** as cells divide and form new cells.

The Meristematic cells are Small and **Isodiametric**. The cells are thin-walled and rich in cytoplasm with a large nucleus.

A Meristem formed of such cells is known as **Eumeristem.**

The cells of meristem are compactly arranged without intercellular spaces.

The **vacuoles** are absent.

The plastids are in the form of **Pro-plastids.**

Meristems in plants are classified based upon the time of **Origin**, **Function**, **Stage** of development and division.

Origin and Development

Primary meristems- From the embryonic stage and persiste throughouy the life of plant. Eg. Cortex

Secondary meristems – Formed from permanent tissues and during a stage after development and persist – Cork Cambium, Cork, Cambium, Interfascicular cambium

Based on Cell division

1. **Mass meristem** – Division in all planes
2. **Plate Meristems** – Two Planes, epidermal growth
3. **Rib Meristems** – One plane, Periclinal division only, only Internal growth

Based on the position, meristems are classified into a namely

Apical meristems, Intercalary meristems and Lateral meristems.

APICAL MERISTEM



Apical meristem located at the growing points of the place the **tips of stem and root**.

The cells of the apical meristem and give rise to the various tissues in the primary body of the plants.

The apical meristems support the plants length.

Intercalary Meristem

Intercalary meristems are placed between Permanent meristems are part of Apical meristem left behind as terms move on in growth.

The intercalary meristems found in the **Internodes of the stems** and **leaf sheaths of monocotyledons**.

The intercalary meristems are **short** are transformed into permanent tissues later

Lateral Meristem

Lateral meristems lie **parallel** with the sides of plant organs.

The **vascular cambium** and the **cork cambium** or phellogen are lateral meristem.

These meristems increase the **girth** of the plant organ.

The cells of these meristems divide in only **one plane**

Based on its function

1. Protoderm – Epidermal growth
2. Procambium- Cambium- Vascular tissues
3. Ground meristem - Cortex

Classification of Meristematic Tissue



