**IV. Adipose Tissue**

Adipose tissue is a type of **connective tissue** composed of specialized cells called **adipocytes**. There are two main types: **brown adipose tissue (primary adipose tissue)** and **white adipose tissue (secondary adipose tissue)**.

**IV.1. Brown Adipose Tissue (Primary Adipose Tissue)**

Brown adipose tissue, also known as **brown fat**, consists of **small cells (about 30 microns in size)** with a **central nucleus**. The cytoplasm contains several **scattered lipid vacuoles** along with a few organelles.

Brown fat is **abundant in hibernating mammals** and is present in **humans only during fetal life**. It plays a role in **thermogenesis (heat production)**, helping newborns regulate body temperature.

**IV.2. White Adipose Tissue (Secondary Adipose Tissue)**

White adipose tissue, or **white fat**, is organized into **lobules** separated by **loose connective tissue** containing **reticular fibers and fibroblasts**. It is **highly vascularized and innervated**.

In each lobule, adipocytes are **tightly packed**. These are **large cells (about 100 microns in diameter)** with an **ovoid or spherical shape**. Each adipocyte contains **a single large lipid droplet** that occupies most of the cell’s volume, pushing the **nucleus to the periphery**. The cytoplasm is reduced to a **thin peripheral layer** containing a **moderate amount of organelles**.

White adipocytes are responsible for the **synthesis and storage of fatty acids in the form of triglycerides**. They can be **isolated** within loose connective tissue, found in **bone marrow**, or grouped together to form **white adipose tissue**.

White fat is primarily located in the **hypodermis** (beneath the skin) and is also found in the **mesentery, omentum, and retroperitoneal regions**.

