Name _____

Inside the Fungal Cell: Exploring Its Intricate Structure

Open-Ended Response Answer Key

1. The cell wall in a fungal cell is primarily composed of chitin, a tough polysaccharide that provides rigidity and protection to the cell. It helps maintain the shape of the cell and protects it from environmental stresses such as osmotic pressure.
2. The nucleus in a fungal cell contains the genetic material in the form of DNA and plays a crucial role in regulating cellular activities. It controls gene expression, directs protein synthesis, and coordinates cell growth and reproduction.
3. Vacuoles contribute to the overall function of a fungal cell by regulating osmotic pressure, storing nutrients, and breaking down cellular waste products. They help maintain turgor pressure, store ions and metabolites, and facilitate the degradation of cellular components.
4. Mitochondria are essential organelles in fungal cells that generate energy in the form of ATP through cellular respiration. They play a critical role in providing the energy needed for various cellular processes, including metabolism, growth, and reproduction.