DISCOVERY

Discovered in 1902 by Italian Scientist Emilio Verrati.

Porter et. al. (1945) showed through electron micrograph that cells contain a lace like network of strands throughout the cytoplasm.

Palade and Porter (1954) mentioned key characteristics of Endoplasmic Reticulum and ribosomes.

In 1966 George Palade generated a tramission electron micrograph illustrating that endoplasmic reticulum is studded with granules (ribosomes).

George Palade (1974) further described structure of endoplasmic reticulum and Golgi complex.

EMILIO VERRATI

KEITH ROBERTS PORTER

GEORGE EMIL PALADE

INTRODUCTION

All eukaryotic cells have an endoplasmic reticulum (ER) except red blood cells of mammals.

In animal cells ER membrane typically constitute more than half of the total membranous system of the cell.

The endoplasmic reticulum (ER) is absent in the prokaryotic cell.

The entire endoplasmic reticulum is enclosed by a continuous membrane and is the largest organelle of most eukaryotic cells.

Its membrane may account for about half of all cell membranes, and the space enclosed by the ER (the lumen or cisternal space) may represent about 10% of the total cell volume.

The endoplasmic reticulum (ER) is an extensive system of a network of membrane enclosed branching tubules and flattened sacs (cisternae) that extends from the nuclear membrane throughout the cytoplasm.

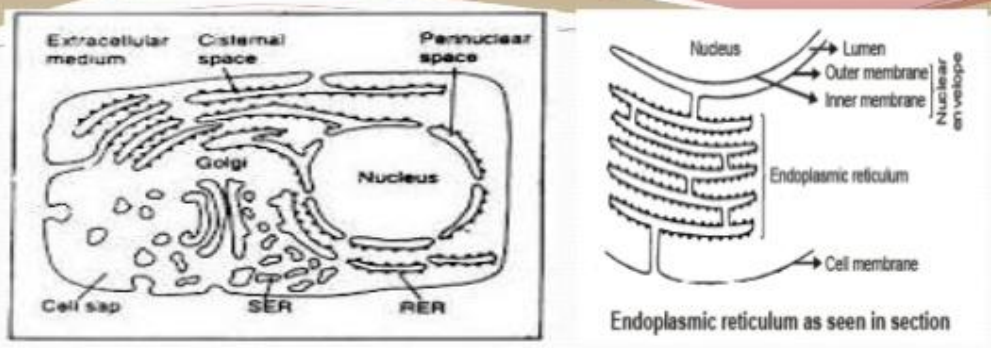

Figure 2: Relationship between the cisternal space and the cell sap

Cisternal space, perinuclear space and the external environment are closely related

SER-Smooth Endoplasmic Reticulum RER-Rough Endoplasmic Reticulum

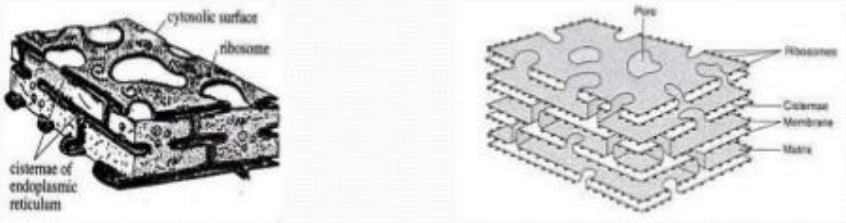

Figure 3: Three dimensional structure of Rough Endoplasmic Reticulum (RER)

showing stacks of flattened cisternae . Ribosomes are bound on cytosolic surface of membrane .