

**FILAMENTOUS STRUCTURES IN *AMOEBA PROTEUS*
VISUALIZED IN SCANNING MICROSCOPE**

ANNA WASIK, LUCYNA GREBECKA, ANDRZEJ GREBECKI,
JOANNA KOŁODZIEJCZYK and MALGORZATA GOLEBIEWSKA
Department of Cell Biology, Nencki Institute of Experimental Biology
3 Pasteur st., 02-093 Warszawa, Poland

The dynamic cytoskeleton in *Amoeba proteus* is a filamentous gel network, composed mainly of F-actin microfilaments accompanied by actin binding proteins, distributed in the peripheral cortex beneath the cell membrane and around the nucleus. As well the cell shape changes as the motility primarily depend on the activity of these structures. In contrast, the endoplasm of amoeba is commonly considered to be a fluid sol. On the other hand, it is well known that in many tissue cells the intracellular fibrillar network links inner surface of the plasma membrane to the nucleus, forming a way of signal transduction. It was therefore our aim, to detect in the fluid endoplasm of amoeba gelated cytoskeletal connections between the submembrane cortex and the nucleus (and/or other organelles). We have applied in this purpose the scanning electron microscopy of amoebae fractured after standard fixation and dehydration. besides the cortical fibrillar network we have focused: (1) network of fibrillar bundles twisting on the outer nuclear surface and surrounding other organelles, e.g. some vacuoles, and (2) cable-like strands leaving the surface of the nucleus, running toward different sites in the cytoplasm and reaching other cell structures, including the cell periphery. It allows us to suppose that the cell nucleus of a moving amoeba, the cytoplasmic organelles, and the cell periphery which receives external signals and generates force for locomotion, are bidirectionally interconnected not only by chemical way through the fluid and flowing endoplasm, but also mechanically by strain and stress transmission.