Table 1. Cell viability and percentage of single cells after enzymatic treatment

Treatment	Cell Viability (%)	Single-Cells (%)
EDTA-Dispase	96.2±0.7* (8)**	65.8±7.9* (6)**
EDTA-trypsin	94.8±1.5 (5)	36.9±5.4 (5)

* Mean±S.E.

** Number of experiments

dissociating isolated islets into single cells. In the repeated experiments, approximately 6×10^5 islet cells were harvested from 200 islets of 6-week-old WKA rats. As shown in Table 1, percentage of single cells was higher with EDTA-Dispase than with EDTA-trypsin when more than 90% of cells were viable. Pure single-cell suspension was readily obtainable by standing total cell harvest for a few min to permit the cell aggregates to settle.

Cell morphology

Under inverted phase-contrast microscopy, the islet cells immediately after inoculation were spherical in shape and freely dispersed (Fig. 1). Under the light microscope, the dissociated cells appeared intact except for a few cells containing vacuoles in their cytoplasm (Fig. 2). The dissociated cells were composed largely of B cells and a small number of A, D and endothelial cells. The B cells were round or oval in appearance, having microvillous projections on the cell surface. There were abundant secretory granules, prominent Golgi complex, well-developed rough endoplasmic reticulum and dispersed mitochondria in the cytoplasm (Fig. 3).

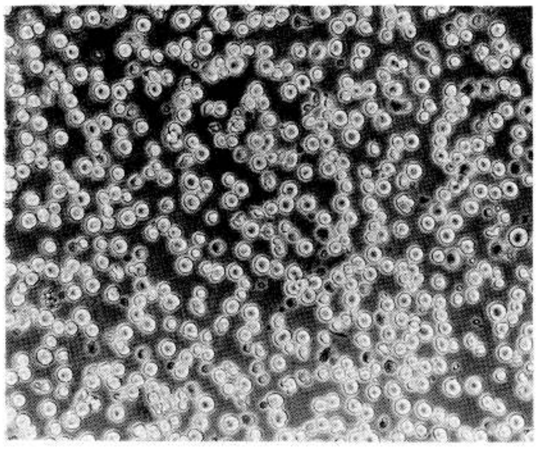

Fig. 1. Islet cells dissociated with EDTA-Dispase under inverted phase-contrast microscopy (×250).

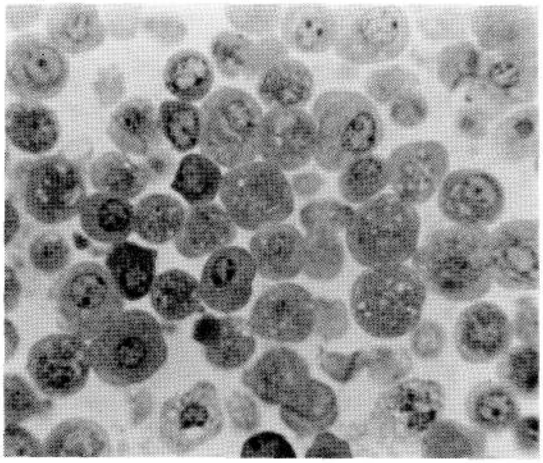

Fig. 2. Light micrograph of the islet cells dissociated with EDTA-Dispase. Toluidine blue staining (×720).

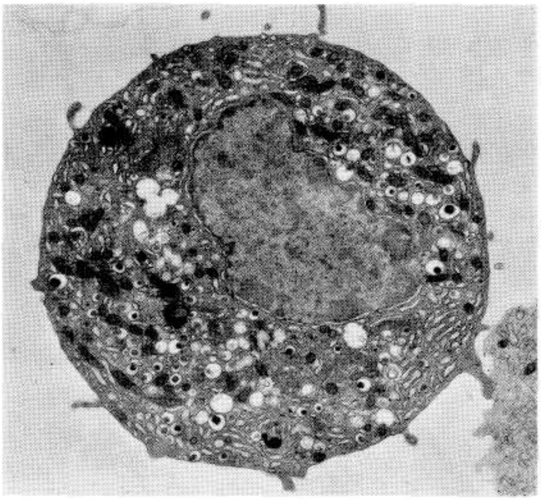

Fig. 3. Electron micrograph of an islet B cell dissociated with EDTA-Dispase, showing excellent preservation of cell morphology (×4400).