
Cytochalasin (Greek CYTOS, cell; CHALASIS, relaxation) since their discovery in 1964 in the laboratories of the Pharmaceuticals Division of Imperial Chemical Industries Limited, the CYTOCHALASINS (Greek cytos, cell; chalasis, relaxation) have become increasingly important as research probes in cytology. These CYTOCHALASINS, a group of structurally related fungal metabolites (CYTOCHALASINS A and B from Helmithosporium dematioides, CYTOCHALASIN E from Rosellinia necatrix), share a number of unusual, interesting and characteristic biological effects, though varying greatly in potency in certain aspects. To date, CYTOCHALASIN B has been used in the vast majority of reported experiments.

Major biological effects observed with the CYTOCHALASINS include:

1. Inhibition of the division of cytoplasm. Total inhibition of cytoplasmic cleavage is obtained without interference with division of the nucleus resulting in binucleate cells. If cultured cells are allowed to remain in the active medium, nuclear division continues and large multinucleate cells are observed.

2. Reversible inhibition of cell movement. When moving L1 cells on a glass surface are treated with CYTOCHALASIN B, peripheral and internal cell movements disappear, but are readily restored by washing the cells with normal medium. This effect is best observed by time-lapse cinematographic studies.

3. Induction of nuclear extrusion. In this very interesting phenomenon, it is remarkable that a cell can be induced to entirely eject its nucleus within minutes of treatment with a chemical compound. Most noteworthy is the fact that CYTOCHALASIN E rarely produces nuclear extrusion. However, it is unique in producing a "halo" around the nucleus.

The CYTOCHALASINS also exert inhibitory effects on the following biological processes: phagocytosis; platelet aggregation and clot retraction; glucose transport; thyroid secretion and release of growth hormone.

Continued research on these interesting compounds will undoubtedly uncover new effects and help elucidate their hitherto unknown mechanism of action. Space does not allow us to cite well over one hundred references from the literature, but a data sheet and comprehensive bibliography are available upon request. The CYTOCHALASINS are made in England by Imperial Chemical Industries Limited and distributed by the Aldrich Chemical Company.

85,779-3 CYTOCHALASIN A 10 mg. $60.00
85,777-7 CYTOCHALASIN B 10 mg. $36.00 50 mg. $150.00
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