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Intracellular Calcium Dynamics, Cell Development, and Stress Tolerance

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Abstract. Intracellular Ca^{2+} and regulation of cell Ca^{2+} play important roles in cell development and in the maintenance and modulation of various cell functions. This report will describe research on the role of membrane and free cytoplasmic Ca^{2+} in cell development and stress tolerance. Results to be presented include microscopic fluorometric data obtained using fluorescent probes for Ca^{2+} and cytoskeletal proteins within individual cells to investigate the role of CA^{2+} in membrane organization, establishment of cell polarity, and maintenance of cytoplasmic streaming under stress conditions.