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NUCLEAR CONTROL OF PLASTID AND MITOCHONDRIAL DEVELOPMENT IN HIGHER PLANTS

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ABSTRACT

The nucleus must coordinate organelle biogenesis and function on a cell and tissue-specific basis throughout plant development. The vast majority of plastid and mitochondrial proteins and components involved in organelle biogenesis are encoded by nuclear genes. Molecular characterization of nuclear mutants has illuminated chloroplast development and function. Fewer mutants exist that affect mitochondria, but molecular and biochemical approaches have contributed to a greater understanding of this organelle. Similarities between organelles and prokaryotic regulatory molecules have been found, supporting the prokaryotic origin of chloroplasts and mitochondria. A striking characteristic for both mitochondria and chloroplast is that most regulation is posttranscriptional.

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