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Sommario/riassunto	Due to their bacterial endosymbiotic origin plastids are organelles with both nuclear-encoded and plastid-encoded proteins. Therefore, a highly integrated modulation of gene expression between the nucleus and the plastome is needed in plant cell development. Plastids have retained for the most part a prokaryotic gene expression machinery but, differently from prokaryotes and eukaryotes, they have largely abandoned transcriptional control and switched to predominantly translational control of their gene expression. Some transcriptional regulation is known to occur, but the coordinate expression between the nucleus and the plastome takes place mainly through translational regulation. However, the regulatory mechanisms of plastid gene expression (PGE) are mediated by intricate plastid-nuclear interactions and are still far from being fully understood. Although, for example, translational autoregulation mechanisms in algae have been described for subunits of heteromeric protein complexes and termed control by epistasy of synthesis (CES), only few autoregulatory proteins have been identified in plant plastids. It should be noted of course that PGE in C. reinhardtii is different from that in plants in many aspects. Another example of investigation in this research area is to understand the interactions that occur during RNA binding between nucleus-encoded RNA-binding proteins and the respective RNA sequences, and how this influences the translation initiation process. In addition to this, the plastid retains a whole series of mechanisms for the preservation of its

protein balance (proteostasis), including specific proteases, as well as molecular chaperones and enzymes useful in protein folding. After synthesis, plastid proteins must rapidly fold into stable three dimensional structures and often undergo co- and posttranslational modifications to perform their biological mission, avoiding aberrant folding, aggregation and targeting with the help of molecular chaperones and proteases. We believe that this topic is highly interesting for many research areas because the regulation of PGE is not only of wide interest for plant biologists but has also biotechnological implications. Indeed, plastid transformation turns out to be a very promising tool for the production of recombinant proteins in plants, yet some limitations must still be overcome and we believe that this is mainly due to our limited knowledge of the mechanisms in plastids influencing the maintenance of proteostasis.