

Supplementary Methods

A custom list of all currently defined genes encoding proteins located in the mitochondria in Arabidopsis was manually compiled and annotated based on the following studies; Mitochondrial outer membrane proteins (Duncan et al., 2011), outer and inner membrane import components (Carrie et al., 2010; Carrie et al., 2010), carrier proteins (Picault et al., 2004; Meyer et al., 2007; Palmieri et al., 2011), complex 1 (Meyer et al., 2008; Klodmann et al., 2010), cytochrome respiratory chain components and biogenesis (Welchen and Gonzalez, 2006; Attallah et al., 2007), cytochrome C assembly and maturation (Spielewoy et al., 2001; Rayapuram et al., 2007; Giege et al., 2008; Bonnard et al., 2010), alternative respiratory chain (Clifton et al., 2005), prohibitins (Van Aken et al., 2010), FeS generation enzymes (Lill and Kispal, 2000; Xu et al., 2009; Balk and Pilon, 2011), in combination with TAIR9 genome annotations), PPRs (O'Toole et al., 2008), RNA editing/splicing (Nakagawa and Sakurai, 2006; de Longevialle et al., 2007; Keren et al., 2009; Koprivova et al., 2010; Liu et al., 2010; Kuhn et al., 2011), RNA polymerase and organelle encoded genes (Kuhn et al., 2009), Transcription factors (Schwacke et al., 2007), C. Carrie unpublished data), ribosomal proteins (A. Carrol unpublished data), translation factors (TAIR9 genome annotations,(Babiychuk et al., 2011), tRNAs (TAIR9 genome annotations in combination with suba experimental localisation data), assembly (Sakamoto et al., 2000), C.Carrie unpublished data), Ascorbate/glutathione (Chew et al., 2003; Rouhier et al., 2004; Giraud et al., 2011), sulphur metabolism (Giraud et al., 2011), heme (Maliandi et al., 2011), folate (Hanson and Gregory, 2002; Rebeille et al., 2006) and photorespiration (Nunes-Nesi et al., 2008), in combination with Mapman ATH1 Arabidopsis TAIR 9 annotation bins). For defining lists of mitochondrial proteins involved in amino acid metabolism, cytosolic glycolysis and the TCA cycle, annotations were based on Mapman ATH1 TAIR9 annotation bin files, with localisation, as these functional categories have been extensively defined previously. For enzymes involved in miscellaneous functions or those with unknown function, lists of genes encoding proteins with experimental evidence of mitochondrial localisation according to suba (<http://suba.plantenergy.uwa.edu.au/>) was cross referenced with mitochondrial lists from (Van Aken et al., 2009) and (Narsai et al., 2011) to generate a list of 248 mitochondrial proteins with unknown/miscellaneous functions. The annotated gene list of 947 mitochondrial located proteins was categorised into a bin hierarchy for display on the custom mitochondria MapMan image according to bin structure shown in Supplementary Table 1.

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