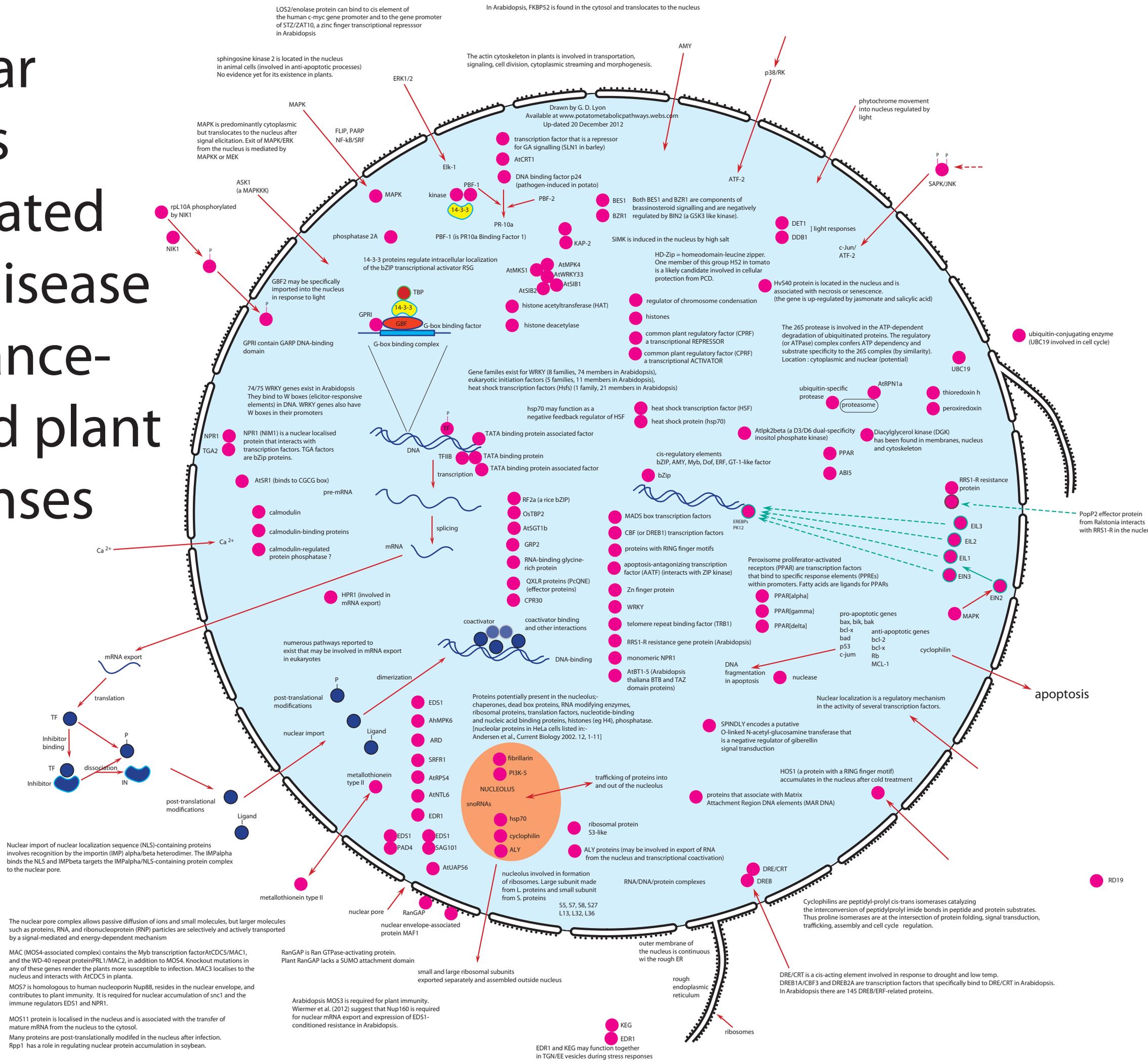


Nuclear events associated with disease resistance-related plant responses



Nuclear import of nuclear localization sequence (NLS)-containing proteins involves recognition by the importin (IMP) alpha/beta heterodimer. The IMPalpha binds the NLS and IMPbeta targets the IMPalpha/NLS-containing protein complex to the nuclear pore.

The nuclear pore complex allows passive diffusion of ions and small molecules, but larger molecules such as proteins, RNA, and ribonucleoprotein (RNP) particles are selectively and actively transported by a signal-mediated and energy-dependent mechanism

MAC (MOS4-associated complex) contains the Myb transcription factor AtCDC5/MAC1, and the WD-40 repeat protein PRL1/MAC2, in addition to MOS4. Knockout mutations in any of these genes render the plants more susceptible to infection. MAC3 localises to the nucleus and interacts with AtCDC5 in plants.

MOS7 is homologous to human nucleoporin Nup88, resides in the nuclear envelope, and contributes to plant immunity. It is required for nuclear accumulation of sncl and the immune regulators EDS1 and NPR1.

MOS11 protein is localised in the nucleus and is associated with the transfer of mature mRNA from the nucleus to the cytosol. Rpp1 has a role in regulating nuclear protein accumulation in soybean.

Arabidopsis MOS3 is required for plant immunity. Wiermer et al. (2012) suggest that Nup160 is required for nuclear mRNA export and expression of EDS1-conditioned resistance in Arabidopsis.

EDR1 and KEG may function together in TGN/EE vesicles during stress responses

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