

P008 Characterization of a plant rRNA processing complex
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Ribosomal rDNA genes (18S, 5.8S et 25S) are transcribed by RNA poll as a pre-rRNA containing rRNA and spacer sequences. Processing of this pre-rRNA involves cleavages of spacers and modification of some bases. In eukaryotes, one of the first steps of rRNA processing is an endonucleotidic cleavage in the 5' external spacer. In radish, this primary cleavage site (P) is located just upstream of four similar motifs (A¹, A², A³ and B) highly conserved in different crucifer plants. Here, we show the characterization of a nuclear factors, NF D, which interacts specifically with the A¹²³BP rDNA sequence. NF D is a complex of around 600 kDa containing between 20 to 30 polypeptides. Among these polypeptides, we have identified nucleolin, fibrillarin and detected snoRNA U3 and U14 in the affinity purified NF D fraction. Also, we have shown that NF D binds and cleaves specifically pre-rRNA containing A¹²³BP sequences. DNA/RNA competition experiments and immunoprecipitation confirm that NF D is the same complex which binds both rDNA and rRNA. In conclusion, NF D is an rRNA processing complex which also binds rDNA and corresponds to the first rRNA processing system described in plants. A model of the role of NF D in transcription and the first events of rDNA processing is proposed.