

mRNA splicing is a crucial step in eukaryotic gene expression. Factors involved in splicing accumulate, forming nuclear bodies called speckles. The function of the speckles has not been fully elucidated up to date, however it has been shown that actively-transcribed genes may associate with the surface of the speckles and that transcripts of these genes accumulate in the interior of the speckles. Our ultrastructural observations indicate that in the activated neurons of the rat brain, speckles undergo dramatic morphological changes: an increase in size and an accumulation of numerous electron-dense aggregates of granules. Moreover, these morphological changes are accompanied by an increased amount of nascent RNA present within the speckles. Based on our data and the literature, we speculate that alterations that we observe reflect an increased transcription of specific genes, which occurs in the activated neurons.