Abstract:

In the cell we can find a lot of small noncoding RNAs, which are important for many processes. Among those RNAs are small nuclear RNA uridin rich, which with proteins create U snRNP.These particles play important role in pre-mRNA splicing. In this process are noncoding sequences (introns) removed and coding sequences (exons) are joined. It is catalyzed by spliceosome. The core of this spliceosome is created by U1, U2, U4, U5 and U6 snRNP. They are essential for this process.

Some steps of U snRNP biogenesis proceed in nuclear structures called Cajal bodies (CB). In my thesis I focused on factors, which are important for targeting U snRNA into CB. I used U2 snRNA like a model.

With the aid of microinjection of fluorescently labeled U2 snRNA mutants I found, that the Sm binding site on U2 snRNA is essential for targeting to CB. Knock down of Sm B/B´showed us, that Sm proteins are necessary for transport U2 snRNA to CB.

Sm proteins are formed on U2 snRNA by SMN complex. Deletion of SMN binding site on U2 snRNA had the same inhibition effect.

From these results we can see, that Sm proteins and SMN complex are important for U2 snRNA biogenesis espacially for targeting into CB.

Key words: U snRNP, Cajal body, U snRNA, cell nucleus