



## Editorial – splicing and alternative splicing



One day, we believe, the complex universe that control the chemical processes determining life will be mastered by the human mind. Then, it will be possible to master how nascent proteins can be delivered in different isoforms with different functions, sometimes opposite ones. Currently, we know that splicing is the baker of this prodigious event. And when the splicing machinery does not work properly the bakery delivers waste, affecting the cell and, at a superior level, the whole organism. Many times, death is the final outcome of such problems. It is known that there are many ways for alternative splicing to proceed, exon skipping being the most common. Also, the same RNA can be expressed as different proteins in different compartments of the body or at different temporal moments within the same compartment. For instance, some colleagues have found that accumulation of mRNAs at synapses is overwhelmingly circadian, with two thirds of synaptic transcripts showing synaptic accumulation in time-of-day-dependent manner (Tyagarajan et al., 2019). Interestingly, sleep deprivation completely abolished proteomic but not transcriptomic oscillations. The current Holy Grail is to fully understand the regulatory mechanisms by which trans-acting proteins can promote or repress the presence of given exon(s). This idea can be summarized in what our fellows Matlin, Clark and Smith called the “cellular code” in a manuscript whose reading it is greatly encouraged (Matlin et al., 2005). What human kind could be capable of if we were able to fully control splicing? Could cancer be cured? Could ageing be reversed?

The Caparica Splicing conference is held every two years in Caparica (Portugal) and is designed as a place where brilliant minds join together in a banquet of knowledge related to splicing, one of the best that can be found in this area. Some of the works presented at Caparica Splicing 2018 are included in this special issue. We are in debt with the contributing authors and with the editors of the International Journal of Biochemistry and Cell Biology that allowed us to launch this

special issue. Last but not least, we acknowledge the Elsevier Editorial for allowing us to present this special issue.

We meet all again next year, please save the date: 3rd SPlicing 12–16 of July 2020.

## References

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