

ER proteostasis addiction in cancer biology: Novel concepts

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© 2015 Elsevier Ltd. Endoplasmic reticulum (ER) stress is generated by various physiological and pathological conditions that induce an accumulation of misfolded proteins in its lumen. ER stress activates the unfolded protein response (UPR), an adaptive reaction to cope with protein misfolding to and restore proteostasis. However, chronic ER stress results in apoptosis. In solid tumors, the UPR mediates adaptation to various environmental stressors, including hypoxia, low pH and low nutrients availability, driving positive selection. Recent findings support the concept that UPR signaling also contributes to other relevant cancer-related event that may not be related to ER stress, including angiogenesis, genomic instability, metastasis and immunomodulation. In this article, we overview novel discoveries highlighting the impact of the UPR to different aspects of cancer biology beyond its known role as a survival factor to the hypoxic environment observed in solid tumors.