عنوان مقاله:

Interplay between ER Stress and Inflammation in AMD

محل انتشار:

هشتمین همایش تحقیقات چشم پزشکی و علوم بینایی ایران (سال: 1397)

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خلاصه مقاله:

Endoplasmic reticulum (ER) stress and inflammation, are common features in Age-related Macular Degeneration (AMD) pathogenesis and are involved in preserving homeostasis in retina. In this paper the association between these two pivotal biological phenomena involved in AMD was investigated in a new multilateral perspective.Methods: We recruited ER stress and inflammation markers to retrieve their interaction information from IMEx-curated databases, allowing us to design an intersection network. In a given intersection network, we detected highly interconnected regions using MCODE clustering algorithm. To gain insight into the most significant biological pathways, an enrichment analysis on intersection MCODE clusters were performed. After integrating expression data into the network, expression activated subnetworks with significant changes between disease and normal conditions were detected. In addition, we studied topological characteristics (degree and betweenness) of the most expressed active subnetworks to identify the hubs.Results: Our results indicated that MAPK signaling pathway and its components are the most important players in the communication between ER stress and inflammation in AMD. We also identified the most significant hubs regarding topological quantifications and expressional activity, including IKBKG, RELA, TRAF6, NFKB1, UBC, IKBKE, ATF2, IKBKB, NFKBIA, APPBP2 and FOS.Conclusion: Computational exploration of major players and molecular mechanisms in pathophysiologic process of AMD is still an open challenge for navigating into novel therapeutic targets. The results of the present study shows the major role of MAPK signaling pathway as an intersectional role in both ER stress and inflammation. The list of the most pivotal hubs that we presented in this study can be applied as a complete and practical set of probable therapeutic targets

کلمات کلیدی:

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