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Senescence in Glioblastoma: Implications for Subtypes, Evolution, and association with Cellular Entities

Ana Hernández-Martínez^{1,2}, Álvaro Monago-Sánchez^{1,2}, Josefa Carrión-Navarro^{1,2}, Noemí García-Romero^{1,2}, Rodrigo Madurga^{1,2}, Ángel Ayuso-Sacido^{1,2,3}

1) Brain Tumor Lab 2) Faculty of Experimental Sciences, Universidad Francisco de Vitoria 3) Fundación Vithas

Senescence, a cell cycle arrest state with increased secretory activity, has a complex role in glioblastoma (GB) development. This study explores senescence's impact on GB, analyzing multiple cohorts. In TCGA, senescence links to patient survival, especially in the mesenchymal (MES) subtype, with sex-specific differences in the proneural (PN) subtype. GLASS data indicates senescence increase in tumors transitioning to MES and decrease in PN subtype. Ivy GAP confirms senescence enrichment in necrotic and vascularized regions, and specific cell types—lymphocytes and macrophages—are linked to senescence in GB. These findings shed light on senescence's multifaceted role, aiding potential therapies and prognostic markers in GB management.