PATHOCHEMICAL ROLE OF SERINE PROTEASE IN TUMOR PROGRESSION AND METASTASIS

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Background. Serine proteases (SP) are endopeptidases that are secreted by both cancer cells and stromal cells and have attracted great attention owing to their elevated expression and dysregulated activity in the tumor microenvironment (TME). **Objective of the study.** To study the pathochemical role of SP in tumor progression and metastasis in order to improve the diagnosis and to develop an effective treatment in cancer. **Material and Methods.** To achieve the proposed goal, it has been made a synthesis of the literature published since 2017 until 2022, using 7 bibliographic sources, including electronic libraries like Frontiers, PubMed, Medscape and Hinari. **Results.** Cancer associated fibroblast (CAF) which are present in TME express Fibroblast activation protein (FAP or Seprase). The role of urokinase plasminogen activator (uPA) in tumor invasion and metastasis has been widely investigated. Aberrant expression of Kallikrein or kallikrein related peptidases (KLKs) has been associated with a variety of malignancies, thus the potential of KLKs as cancer markers has been suggested for several members of this protease family. Granzymes (Gzm) are cell death-inducing SP primarily known for their role in eliminating infected and transformed cells through cytotoxic T cells and natural killer cells. GzmM expressed in carcinomas has been implicated in promoting tumor growth, metastasis, and epithelial-mesenchymal transition (EMT) dependent on STAT3 signaling. **Conclusion.** During malignant progression, several SP appear to be key players at the tumor-stroma interface. By elucidating how these SP on stromal cells are involved in modulating immune responses will help advance pharmaceutical anticancer strategies.

Keywords: Serine proteases, tumor progression, metastasis.