The role of macrophage inhibitory factor in tumorigenesis and central nervous system tumors.

Abstract:
Macrophage migration inhibitory factor (MIF) has been described as a protein that plays an important role in both innate and acquired immunity. Further research has shown that MIF plays a particularly critical part in cell cycle regulation and therefore in tumorigenesis as well. Over the past few years, the significance of the role of MIF in a variety of both solid and hematologic tumors has been established. More recently, interest has increased in the role of MIF in the development of central nervous system (CNS) tumors, in which it appears to influence cell cycle control. In addition, MIF has been identified as an essential actor in metastasis and angiogenesis. Vascular growth factor concentration raises because of increased levels of MIF in brain tumors. Recently, the MIF receptor complex has been described, and it appears that this may be a suitable drug target for treatment of brain tumors. In light of these findings, the authors chose to conduct a systematic search for information regarding MIF that has been published within the past 15 years using the terms "inflammation," "glioblastoma," "brain tumor," "astrocytoma," "microglia," "glioblastoma," "immune system and brain tumors," "glioblastoma and MIF," and "brain tumor and MIF." The aim of this article was thus to present a detailed review of current knowledge regarding the role of MIF in CNS tumor pathophysiology.