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Glioblastoma-derived mechanisms of systemic immunosuppression.

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Abnormalities of cellular immunity are commonly seen in patients with glioblastoma (GBM), and the subsequent relative immunosuppression likely contributes to poor tumor-specific responses in affected individuals. Endogenous immune regulation is likely to limit the efficacy of a wide array of immunotherapeutic strategies, therefore mandating consideration in the continued development of novel treatments for GBM. Various tumor-associated factors have been implicated as potential generators of the immunosuppressive effect. This article outlines relevant experimentation exploring the nature of immune defects in patients with GBM, including a critical discussion of tumor-secreted factors, cell-surface proteins, and more recently described populations of immunoregulatory leukocytes that have potential roles in the subversion of cellular immunity.

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