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# Acyclovir inhibition of IDO to decrease Tregs as a glioblastoma treatment adjunct.

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### Abstract

Regulatory T cells, Tregs, are a subset of lymphocytes that have immunosuppressive attributes. They are elevated in blood of glioblastoma patients and within this tumor's tissue itself. Indoleamine 2,3-dioxygenase, IDO, converts tryptophan to kynurenine. IDO activity enhances Treg formation by pathways that are unknown. Experimentally, inhibition of IDO decreases Treg function and number in rodents. The common anti-viral agent acyclovir inhibits IDO. Acyclovir may thereby decrease Treg function in glioblastoma. If it can be confirmed that Treg counts are elevated in glioblastoma patients' tumor tissue, and if we can document acyclovir's lowering of tissue Treg counts by a small trial of acyclovir in pre-operative glioblastoma patients, a trial of acyclovir effect on survival should be done given the current poor prognosis of glioblastoma and the well-established safety and low side effect burden of acyclovir.

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