# Anaesthetics and cancer cell biology

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A significant number of patients undergo surgery for primary tumor resection. While this management option is the most effective route available for many patients, metastatic recurrence is a common problem. The perioperative period is a critical time for patients and multiple factors are likely to play a role in postoperative metastatic recurrence, including the choice of anesthetic agent. Depending on the anesthetic technique adopted, immunosuppression may be attenuated or augmented. On the whole, regional anesthetics are associated with improved cancer outcomes and general anesthetics with poorer cancer outcomes. It is not a new theory that volatile anesthetic agents may affect perioperative immunomodulation, promoting cancer growth and metastatic recurrence, but this topic has only recently been readdressed. Volatile anesthetics have the ability to alter components of cellular functioning, a feature enabling anesthesia to be used in the context of organoprotection. However considering cancer is a complex disease involving dysregulated protein expression, the effect of volatile anesthetics on identified oncogenes needs to be explored. Particular emphasis has been placed upon hypoxia-inducible factors (HIFs). Evidence suggests that not only are HIFs important mediators of angiogenesis, they play a role in coordinating downstream oncogenes. Therefore if volatile anesthetics upregulate HIFs, they are likely to affect malignant progression and could influence long-term patient outcomes. I will be reviewing the current evidence as to whether anaesthetics/techniques affect cancer outcomes.