TXA_2 receptor-binding affinity at the 2 different concentrations. Consequently, 40 μM propofol might affect the TXA_2 pathway through enhancing the activity of the Gq protein or PLCβ. (Fig. 1).

In summary, volatile anesthetics such as halothane and sevoflurane have been found to inhibit platelet aggregation. Enflurane, isoflurane, and desflurane appear to have minimal or negligible effects on platelets. Barbiturates, benzodiazepines, and etomidate do not seem to affect platelet function. One intravenous anesthetic, propofol, has dual effects on platelet aggregation. High concentrations of propofol suppress platelet aggregation, but low concentrations of propofol enhance platelet aggregation.

These anesthetics appear to have similar effects on platelet aggregation and bleeding time just like other antiplatelet drugs. Therefore it is possible that these anesthetics may affect the incidence of intraoperative bleeding or thromboembolic complications in a similar manner to other antiplatelet drugs. However, the clinical significance of the inhibitory effect of these anesthetics on platelet function in vivo awaits further investigations.

REFERENCES

1. Gibbs, N.M. The effect of anaesthetic agents on platelet function. *Anaesth. Intens. Care* 1991; **19**, 495-520.
2. Plow, E.F., Ginsberg, M.H. "The molecular basis for platelet function" in *Hematology: basic principles and practice*, 3rd ed.; Hoffman, R., Ed.; Churchill Livingstone: New York 2000; pp 1741-1752.
3. Michelson, A.D. Flow cytometry: a clinical test of platelet function. *Blood* 1996; **87**, 4925-4936.
4. Shattil, S.J., Kashiwagi, H., Pampori, N. Intergrin signaling: the platelet paradigm. *Blood* 1998; **91**, 2645-2657.
5. Ueda, I. The effects of volatile general anesthetics on adenosine diphosphate-induced platelet aggregation. *Anesthesiology* 1971; **34**, 405-408.
6. Bjoraker, D.G. Failure of clinical concentrations of halothane to block adenosine diphosphate-induced platelet aggregation in vitro. *Br. J. Anaesth.* 1979; **51**, 187-191.
7. Dalsgaard-Nielsen, J., Gormsen, J. Effects of halothane on platelet function. *Thromb. Haemost.* 1980; **44**, 143-145.
8. Walter, F., Vulliemoz, Y., Verosky, M., Triner, L. Effects of halothane on the cyclic 3',5'-adenosine monophosphate enzyme system in human platelets. *Anesth. Analg.* 1980; **59**, 856-861.
9. Bertha, B., Sill, J.C., Plumhoff, E. Volatile anesthetics and platelet aggregation in pigs and humans. *Anesthesiology* 1990; **73**:3A, A586.
10. Hirakata, H., Ushikubi, F., Narumiya, S., Hatano, Y., Nakamura, K., Mori, K. The effect of inhaled anesthetics on the platelet aggregation and the ligand-binding affinity of the platelet thromboxane A_2 receptor. *Anesth. Analg.* 1995; **81**, 114-118.
11. Kohro, S., Yamakage, M. Direct inhibitory mechanism of halothane on human platelet aggregation. *Anesthesiology* 1996; **85**, 96-106.
12. Corbin, F., Blaise, G., Sauve, R. Differential effect of halothane and forskolin on platelet cytosolic Ca^{2+} mobilization and aggregation. *Anesthesiology* 1998; **89**, 401-410.
13. O'Brien, J.R., Etherington, M., Jamieson, S. Refractory state of platelet aggregation with major operations. *Lancet* 1971; **2**, 741-743.
14. Kokores, J.A., Economopoulos, T.C., Alexopoulos, C., Pyrovolakis, J., Papayannis, A.G. Platelet function tests during major operation for gastro-intestinal carcinomas. *Br. J. Surg.* 1977; **64**, 147-149.
15. Lichtenfeld, K.M., Schiffer, C.A., Helrich, M. Platelet aggregation during and after general anesthesia and surgery. *Anesth. Analg.* 1979; **58**, 293-296.
16. Dalsgaard-Nielsen, J., Risbo, A., Simmelkjaer, P., Gormsen, J. Impaired platelet aggregation and increased bleeding time during general anaesthesia with halothane. *Br. J. Anaesth.* 1981; **53**, 1039-1042.
17. Fyman, P.N., Triner, L., Schranz, H. Effect of volatile anesthetics and nitrous oxide-fentanyl anaesthesia on bleeding time. *Br. J. Anaesth.* 1984; **56**, 1197-1200.
18. Sweeney, D., Williams, V. The effect of halothane general anaesthesia on platelet function. *Anaesth. Intens. Care* 1987; **15**, 278-281.
19. Cambria, R.P., Megerman, J., L'Italien, G., Warnock, D., Strauss, H.W., Abbott, W.M. The effect of halothane anesthesia on platelet aggregation in vivo: decreased deposition on polytetrafluoroethylene arterial grafts in dogs. *Surgery* 1983; **93**, 752-757.
20. Bertha, B.G., Folts, J.D., Nugent, M., Rusy, B.F. Halothane, but not isoflurane or enflurane, protects against spontaneous and epinephrine-exacerbated acute