Neomycin sulfate is an aminoglycoside antibiotic and calcium channel inhibitor.

**In Vitro:** Neomycin inhibits thrombin–stimulated release of inositol 1,4,5–trisphosphate (IP3), by selectively binding PIP2, but does not inhibit 32P incorporation into PI or initiation of DNA synthesis[1]. Neomycin (10 μM–1 mM) induces considerable release of [3H]arachidonic acid from phosphatidylinositol, phosphatidylcholine and phosphatidylethanolamine in saponin–permeabilized human platelets prelabeled with [3H]arachidonic acid. Moreover, neomycin enhances arachidonic acid release induced by thrombin. Addition of neomycin (100 μM) to 45Ca2+–preloaded platelets elicits 45Ca2+ mobilization from intracellular stores[2]. Neomycin (0–10 mM) inhibits guanosine 5’–[gamma–thio]triphosphate–stimulated PLD activity in digitonin–permeabilized NG108–15 cells in a concentration–dependent manner (50% inhibition at 100 μM).

Neomycin similarly inhibits PLD activity present in rat brain membranes and assayed in vitro with [3H]phosphatidylcholine as substrate (50% inhibition at 65 μM)[3]. Neomycin (5 mM) causes reversible reductions in the level of intracellular Ca2+, but PtdIns(4,5)P2 is not required for the channel activity[4].

**References:**


