Researchers at the University of South Florida have identified a novel anti-proliferative and anti-cancer compound that targets protein kinase C iota (PKC-ι) in neuroblastoma.

Neuroblastomas are highly lethal tumors. 85% of cerebral neuroblastomas occur in children and 15% in adults. They are the fourth most common type of cancer in children. There are approximately 650 new cases of neuroblastoma each year in the United States. PKC-ι is an atypical protein that plays an essential role in the growth, proliferation and survival of many types of cancer cells. It has long been implicated in carcinogenesis. Despite new anticancer drugs that enter the market, the limited success of these products in treating cancer necessitates the development of new strategies to combat the disease.

USF inventors have identified ICA-1 as a novel chemotherapeutic agent for neuroblastoma. The compound blocks the catalytic activity of PKC-ι by binding to a specific region on the protein and selectively inhibits proliferation of neuroblastoma cells that overexpress PKC-ι.

ICA-1 targets a unique pathway found in neuroblastoma that may have a synergistic effect on cancer cells when used with other forms of anti-cancer therapy. Thus, it has potential as a standalone chemotherapeutic or as part of combinatorial therapy.