# The use of nifedipine derivatives for enhancing Gallium uptake in chemotherapy, radiotherapy, and nuclear medicine imaging

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## Technology description

In vivo imaging with gallium-67 is routinely used in the diagnosis of tumors, particularly in patients with Hodgkin's lymphoma; gallium scans can also be useful in non-Hodgkin's lymphoma and in certain types of carcinomas, sarcomas, and melanoma. Gallium compounds (containing stable or radioisotopes) also appear to have significant therapeutic potential as primary or adjunctive agents in the treatment of a wide variety of cancers. However, the utility of gallium compounds as chemotherapeutics, and of Ga-67 as a tumor imaging agent, is currently limited because gallium accumulates poorly in many types of tumors, and because the magnitude or uniformity of gallium uptake is inconsistent in many tumor types.
OHSU investigators have discovered a way to enhance the rate of Ga-67 uptake by 1000-fold in tumor cells, as well as to improve the magnitude and uniformity of uptake in otherwise refractory tumor types (see Luttropp et al., 1999, J. Nucl. Med., 40:159-165). These effects have been demonstrated in controlled experiments in a wide variety of tumor cell lines, and in vivo experiments are in progress. Enhanced uptake of gallium by tumors could lead to a significant improvement in the utility of gallium compounds as chemo- and radiotherapeutic agents, as well as increase the utility of Ga-67 in diagnostic imaging, by improving the sensitivity and specificity of existing procedures, and by increasing the range of tumor types that can be effectively targeted.

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