



Aurora Kinase Inhibitors for Cancer Treatment (20120305, Dr. Zigang Dong)

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Aurora Kinases Are Key to Cancer Growth

Aurora A, B, and C are a family of serine/threonine kinases that play key roles in mitosis. In particular, inhibition of Aurora B causes cytokinesis failure, abnormal exit from mitosis, and ultimately apoptosis. Aurora kinases are believed to be key to the development and progression of cancer, evidenced by the efficacy of cancer treatments based on Aurora kinase inhibition.

Several small molecule Aurora kinase inhibitors have been investigated for cancer treatments, but the FDA has yet to approve any of these inhibitors for clinical use. Therefore, a need exists to find a compound that will act as an Aurora kinase inhibitor for use in the development of novel cancer therapeutics.

Aurora B Inhibitors

A series of compounds have been identified that inhibit Aurora B kinase activity. Preclinical testing shows these compounds strongly inhibit Aurora B activity *in vitro* and cause cell cycle arrest and apoptosis in lung cancer cells. These compounds also suppress anchorage-independent growth of lung cancer cells, and suppress tumor growth in a xenograft mouse model.

These compounds could be used to prevent and treat lung, pancreatic, ovarian, breast, and prostate cancer, leukemia, myeloma, glioblastoma multiforme, non-Hodgkin's lymphoma, and peripheral T-cell lymphoma.

BENEFITS AND FEATURES OF AURORA KINASE INHIBITORS

- Strong inhibitors of Aurora B kinase
- Show anti-cancer activity *in vitro* and *in vivo*
- Could be used to treat a wide variety of diseases

Phase of Development *In vitro and in vitro* proof of concept. Compounds have been synthesized and testing is ongoing.

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