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Thank you for entrusting in the compounding services at Madison Medical Compounding Pharmacy to help meet the unique medication needs of your patients. We are excited to share our monthly newsletter with you and look forward to working with you. Please don't hesitate to let us know how we can assist you and your practice.

LeAnn Chambers, Pharm.D. and Matthew Chambers, Pharm.D.

Potential Help for Patients with Cancer using LDN

Naltrexone is an opioid antagonist that inhibits cell proliferation in vivo when administered in low doses, i.e., as Low Dose Naltrexone (LDN). LDN can reduce tumor growth by interfering with cell signaling and by modifying the immune system. LDN in oral dosages from 1.5-4.5mg/day has immunomodulatory and antitumor effects. Tumorigenic events appear to be dictated by the duration of opioid receptor blockade. McLaughlin and Zagon¹ observed through preclinical studies that the duration of opioid receptor blockade is responsible for LDN's effect. The intermittent blocking (i.e., 4-6 hours/day) of opioid growth factor receptor (OGFr) by LDN results in an upregulation of endogenous opioid growth factor (OGF), chemically called [Met5]-enkephalin. This produces an antitumor effect by impairing cancer cell proliferation, blocking tumor mitosis, and preventing uncontrolled proliferation. NOTE: At standard doses of naltrexone such as 50-100mg used to treat addiction, naltrexone has produced the opposite effect: it invokes a continuous receptor blockade of the OGF-OGFr axis that results in enhanced cell proliferation and cancer progression.



LDN's effect on the OGF-OGFr axis has been shown to slow cell proliferation in multiple human cancer lines, including breast, soft tissue, gastrointestinal, brain, and liver cell cultures, without interfering with apoptosis. LDN alters the growth of pancreatic, colorectal, and squamous cells by blocking OGFr, reducing tumor growth, interfering with cell signaling, and regulating immune system function. LDN shows promising results for people with primary cancer of the bladder, liver, lung, and lymph nodes.

Several studies, investigating additive effects of OGF and standard chemotherapy, have demonstrated enhanced efficacy, as well as decreased toxicity, when OGF is combined with paclitaxel (taxol), cisplatin, or gemcitabine. In this sense, LDN shows promising results for people with primary cancer of the bladder, breast, liver, lung, lymph nodes, colon, and rectum. LDN has an antitumor effect. Lissoni et al.² reported the LDN and radiotherapy treatments of patients with malignant astrocytomas. The study demonstrates significant survival when compared to radiotherapy alone. Through treatment based on LDN and α -lipoic acid (ALA/NTX), patients with metastatic or non-metastatic pancreatic cancer showed prolonged survival, without adverse effects. LDN was also effective in inhibiting tumor growth when combined with D vitamin and panobinostat.

¹ [Biochem Pharmacol 2015; 97\(3\): 236-46.](#)

² [Curr Drug Res Rev. 2021 Jan 26.](#)

LDN is not commercially available but can be compounded as a prescription medication by our pharmacy.

Our compounding pharmacy can customize medications to help solve many problems experienced by patients with cancer or chronic illness.

- Customized doses for patients with renal or hepatic failure.
- Change in route of administration, such as to transdermal or rectal preparations, for patients who are unable to swallow or take oral medications, and who don't want to have regular injections.
- Topical medications to promote wound healing.
- Medications to help with symptoms such as shortness of breath, excessive salivation, dry mouth, and nausea and vomiting
- Customized therapy to treat the causes of chronic pain.

***Let us know how we can be a part of your patient's care team.
Your questions are welcome.***

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