

## **New Low-Cost Cancer Treatment**

by Steven M. Beresford, Ph.D.

### **ABSTRACT:**

Powerful anti-cancer activity has been observed in a group of inexpensive OTC (over-the-counter) drugs derived from benzimidazole that are available worldwide. Regression, and in some cases remission, has been documented in a wide range of cancers. Research findings indicate that these drugs may be used as the primary method of treatment or as an adjunct to standard chemotherapy and radiation therapy.

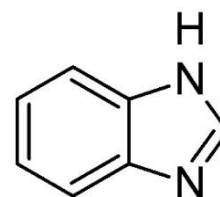
### **KEY WORDS:**

Cancer, oncology, anthelmintics, benzimidazole, mebendazole, flubendazole, albendazole, fenbendazole, ivermectin, cannabidiol, curcumin, vitamin D.

### **1) Repurposing FDA-Approved Drugs For Use In Oncology**

One of the most interesting and exciting areas of medical research is the repurposing of FDA-approved drugs for use in oncology. More than 1,600 drugs are currently being investigated. This report describes several of the most effective.

Powerful anti-cancer activity has been discovered in a group of OTC drugs known as anthelmintics. These drugs are based on benzimidazole and are used by millions of people throughout the world to treat intestinal and other types of parasitic worms. The four most common anthelmintic drugs are the subject of this report.



Benzimidazole

Mebendazole, flubendazole, albendazole, and fenbendazole are widely used for human and veterinary care. They are all FDA-approved as anthelmintics and have been shown

to be safe and without the debilitating side-effects associated with chemotherapy such as nausea, vomiting, neuropathy, hair loss, fatigue, or cognitive impairment.

## **2) Worldwide Incidence Of Cancer**

According to the International Agency for Research on Cancer, there are approximately 20 million new cases and 10 million deaths worldwide per annum. In addition, there are approximately 50 million people who were diagnosed with cancer within the last 5 years and are still alive. The following table gives the major types of cancer with new cases and deaths in millions:

<u>Cancer</u>	<u>Cases</u>	<u>Deaths</u>	<u>Cancer</u>	<u>Cases</u>	<u>Deaths</u>
Breast	2.3	0.69	Lung	2.2	1.8
Colorectal	1.9	0.94	Prostate	1.4	0.38
Stomach	1.1	0.77	Liver	0.9	0.83
Cervix	0.6	0.34	Esophagus	0.6	0.54
Thyroid	0.6	0.04	Bladder	0.6	0.2
Lymphoma	0.5	0.26	Pancreas	0.5	0.26
Leukemia	0.5	0.31	Kidney	0.4	0.18
Melanoma	0.3	0.06	Endometrial	0.4	0.09
Ovarian	0.3	0.21	Brain	0.3	0.25

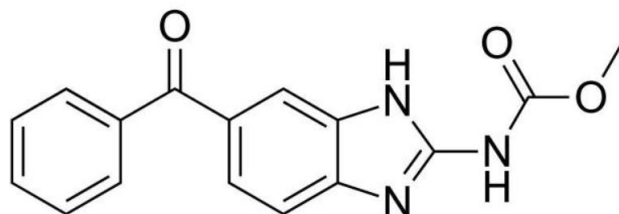
Cancer is a disease that can ruin a person financially. Treatment in the USA is the most expensive globally with the following average costs: initial care of \$44,000, continuing care of \$6,000 annually, and end-of-life care of \$110,000. The cost of treatment in most other countries is lower but can still result in financial ruin with no guarantee of success.

Furthermore, in many low and middle income countries there are few specialized oncologists, resulting in delayed diagnosis and limited access to chemotherapy or radiation treatment. Clearly, a better way of treating the disease is needed.

## **3) Mebendazole (MBZ)**

Mebendazole (methyl [5-benzoyl-1H-benzimidazol-2-yl] carbamate) was synthesized in the 1960s during a search for broad-spectrum anthelmintics. It was developed by Janssen Pharmaceuticals in Belgium and introduced into medical practice in 1971. Its primary mechanism involves binding to parasite  $\beta$ -tubulin, inhibiting microtubule polymerization, leading to nutrient uptake blockade and parasite death. Preclinical pharmacology and toxicology studies enabled its introduction into human therapy in 1971, marking a new era in antiparasitic drugs.

Recent evidence has repurposed MBZ as an effective anti-cancer agent, with numerous *in vitro* and *in vivo* studies involving multiple tumor types.



### Approved Indications and Primary Use

Mebendazole's primary human use is the treatment of intestinal helminthiases such as ascariasis, hookworm, whipworm, and pinworm infections. In veterinary medicine, MBZ is administered orally to livestock and companion animals against roundworms and tapeworms. Although its systemic absorption in humans is low, its high safety margin and broad antiparasitic spectrum have driven its global adoption.

It should be noted that neither MBZ nor the other anthelmintics discussed in this report have been FDA-approved for oncology. Despite the high safety margins, their anti-cancer use in humans is off-label.

### Regulatory Status and Availability

Countries differ in MBZ's pharmacy status for human use. In most countries, MBZ is available over-the-counter (OTC). In the USA, Canada, UK, and Italy, a prescription is needed. In veterinary medicine, MBZ is widely available by prescription and OTC, depending on the species and formulation.

Outside the USA, 100 mg MBZ tablets cost between \$0.41 and \$1.20 per tablet depending on the country of origin. In the USA, the cost is \$713.98 per tablet due to price gouging by the supplier. Fortunately, Americans can obtain MBZ tablets online from foreign suppliers at the usual price. Trade names include Mendazol, Mebendex, Mebex, Vermox, and Zalzol.

Mebendazole is generally well tolerated. Common adverse effects (~1% incidence) include headache, abdominal pain, vomiting, diarrhea, and transient elevated liver enzymes. In rare cases, prolonged use has been associated with rash, hives, hair loss, and bone marrow suppression. Most side effects are mild and reversible upon discontinuation. Pregnancy use is contraindicated due to animal model toxicity data.

## **Anti-Cancer Activity: Preclinical and Clinical Evidence**

Preclinical studies dating to 2002 first reported MBZ's cytotoxic effects in human lung cancer cell lines, demonstrating G2/M cell cycle arrest and induction of apoptosis. Since then, MBZ has shown activity in many diverse malignancies including:

- Brain tumors (glioblastoma, medulloblastoma)
- Triple-negative breast cancer
- Colorectal carcinoma
- Lung carcinoma
- Gastric cancer
- Pancreatic and thyroid cancer
- Acute myeloid leukemia
- Oropharyngeal squamous cell carcinoma
- Gastrointestinal cancer
- Adrenocortical carcinoma
- Prostate, head and neck cancers
- Wnt-activated colorectal cancer

## **Clinical Investigations**

- Phase I study in high-grade glioma: MBZ was well tolerated with low toxicity.
- Phase IIa trial in advanced cancer: individualized dosing was safe but showed limited efficacy, prompting the need for improved formulations and strategies.

Several anecdotal and observational reports suggest MBZ's potential in advanced cancers:

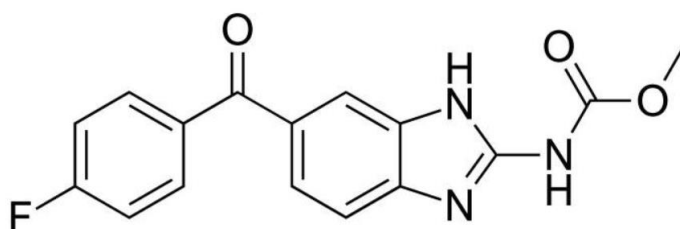
- Metastatic colorectal cancer complete molecular response with dual immunotherapy and MBZ.
- Stage 4 pancreatic cancer success stories with fenbendazole/MBZ protocols reported on patient forums.
- Terminal cancer patients achieving remission-like outcomes after combining MBZ with natural adjuncts and other antiparasitic drugs.

## Conclusions

Mebendazole's low toxicity, cost-effectiveness and multifaceted anticancer mechanisms make it an attractive repurposing candidate. Preclinical and early clinical data support its potential in diverse malignancies.

### 4) Flubendazole (FLZ)

Flubendazole (methyl N-[6-(4-fluorobenzoyl)-1H-benzimidazol-2-yl] carbamate) was synthesized by Janssen Pharmaceuticals in the early 1970s as part of a series of benzimidazole carbamate anthelmintics. It acts by binding parasite  $\beta$ -tubulin and disrupting microtubule assembly, leading to cytoskeletal collapse, metabolic failure, and death of parasitic worms.



In human medicine, flubendazole is FDA-approved for the oral treatment of intestinal helminthiases such as enterobiasis, ascariasis, trichuriasis, and hookworm infections. In veterinary practice, it is moderately used in livestock and occasionally in companion animals against gastrointestinal nematodes and certain cestodes.

### Regulatory Status and Safety Profile

Flubendazole is available OTC in France, Portugal, Egypt, Ecuador, and many other countries under the name Fluvermal. A prescription is required in the USA, Canada, Australia, UK, and Japan. The typical cost is \$0.10 to \$0.50 per 100 mg tablet.

Flubendazole is generally well tolerated due to its low systemic absorption. Reported side-effects include gastrointestinal disturbances (nausea, abdominal pain, diarrhea), headache and dizziness, allergic skin reactions, (rash, pruritus), and transient elevation of liver enzymes. Most side-effects are mild and reversible upon discontinuation.

### Anti-Cancer Activity: Preclinical Evidence

The anti-cancer potential of flubendazole emerged in 2010 when Spagnuolo et al. reported its cytotoxicity against leukemia and multiple myeloma cell lines and primary

patient samples at nanomolecular concentrations, with tumor growth delay observed in xenograft models.

Subsequent studies demonstrated efficacy in a range of malignancies including hematologic cancers (leukemia, multiple myeloma, lymphoma) and solid tumors (colorectal cancer, breast cancer, neuroblastoma, glioma, melanoma, esophageal carcinoma, non-small cell lung cancer, prostate cancer, and hepatocellular carcinoma). Anti-cancer activity has also been observed in colorectal cancer (CRC) cell lines and nude mouse CRC xenografts, attributing effects to STAT3 inhibition and autophagy activation.

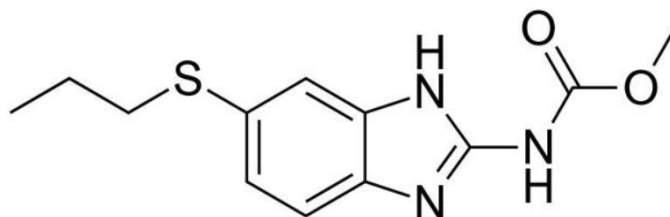
Molecular mechanisms include microtubule disruption via  $\beta$ -tubulin binding, cell cycle arrest in G2/M phase, induction of apoptosis (caspase-dependent pathways), autophagy activation (LC3 conversion, Beclin-1 upregulation), inhibition of STAT3 signaling and downstream targets (MCL1, VEGF, survivin), promotion of ferroptosis, and suppression of angiogenesis.

## Conclusions

Flubendazole's low toxicity, cost-effectiveness, and multifaceted anti-cancer mechanisms make it an attractive repurposing candidate. Preclinical data support its potential in diverse malignancies. However, no case studies, clinical trials, or anecdotal evidence have been reported.

## 5) Albendazole (ABZ)

Albendazole (methyl 5-[propylthio]-2-benzimidazolecarbamate), was developed in 1975 by Smith-Kline & French for veterinary use and approved for human parasitic infections in the late 1980s. Its broad-spectrum activity against nematodes and cestodes led to widespread adoption worldwide.



In the past decade, mechanisms originally elucidated in parasites such as microtubule disruption have driven interest in albendazole as an anti-cancer agent. Specifically, it

binds to the colchicine-sensitive site of  $\beta$ -tubulin, inhibiting polymerization, depleting parasite energy stores, and inducing cytoskeletal collapse.

In human medicine, albendazole is FDA-approved for human intestinal helminthiasis ~ ascariasis, trichuriasis, strongyloidiasis, and hookworm infection ~ as well as tissue parasitoses such as neurocysticercosis and hydatid disease. Its veterinary formulations treat gastrointestinal and hepatic flukes in livestock and companion animals.

### **Regulatory Status and Availability**

ABZ for human use requires a prescription in the United States, Canada, Europe, and Australia. In most other countries, ABZ is available OTC to support mass deworming. In veterinary medicine, ABZ is widely available by prescription and OTC.

Outside the USA, 400 mg ABZ tablets cost between \$0.10 and \$0.50 depending on the country of origin. In the USA, the cost is significantly higher due to price gouging by the supplier. Americans can obtain ABZ tablets online from foreign suppliers at the usual price. Trade names include Zentel, Albendex, Aldazol, Wormnil, and Citazole.

### **Safety Profile and Side Effects**

Common side-effects include gastrointestinal discomfort (nausea, abdominal pain), headache, and transient elevation of liver enzymes. Rare side-effects include bone marrow suppression and hepatotoxicity, reversible upon discontinuation. Monitoring of liver function and blood counts is advised during prolonged or intensive therapy. Most side effects are mild and reversible upon discontinuation.

### **Anti-Cancer Activity: Preclinical Evidence**

Interest in albendazole's anti-cancer properties emerged in the early 2000s, with a surge of preclinical studies over the past decade. Broad *in vitro* and *in vivo* efficacy against multiple tumor types has been reported against:

- Head and neck squamous cell carcinoma
- Ovarian carcinoma
- Melanoma
- Non-small-cell lung carcinoma
- Prostate carcinoma
- Colorectal carcinoma

- Gastric carcinoma
- Breast carcinoma
- Leukemia

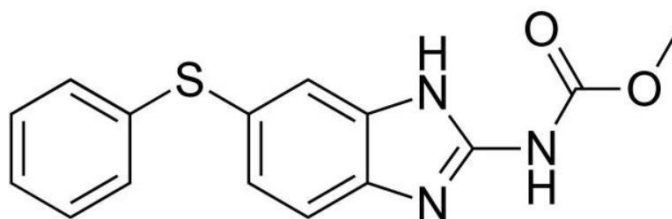
## Conclusions

Albendazole's low toxicity, cost-effectiveness and multifaceted anti-cancer mechanisms make it an attractive repurposing candidate. Preclinical and early clinical data support its potential in diverse malignancies. However, no case studies, clinical trials, or anecdotal evidence have been reported.

## 6) Fenbendazole (FBZ)

Fenbendazole (methyl 5-[phenylthio]-2-benzimidazole carbamate) was synthesized by Hoechst AG in Germany in the early 1970s as part of a series of benzimidazole derivatives aimed at improving efficacy against gastrointestinal parasites in animals.

Its broad spectrum of activity and favorable safety margin quickly established FBZ as a staple veterinary anthelmintic in widespread use around the world. Designed to bind parasite  $\beta$ -tubulin and inhibit microtubule assembly, FBZ was introduced commercially around 1974 and became widely marketed under brands such as Panacur and Safe-Guard.



## Approved Indications and Availability

Fenbendazole's primary approved use is veterinary deworming of dogs, cats, and horses in the treatment of roundworms, hookworms, whipworms, and tapeworms, and for cattle, sheep, and pigs in the treatment of gastrointestinal nematodes and tapeworms.

It is not FDA-approved for human use and safety studies have not been carried out, although off-label use indicates a high safety margin with gastrointestinal side-effects such as discomfort or diarrhea in less than 5% of users, and asymptomatic elevation

of liver enzymes with prolonged high-dose use. Side-effects are mild and reversible upon discontinuation.

FBZ is available OTC for veterinary use in the USA, the UK, Canada, Australia and most other countries. In Germany and some EU states, a veterinary prescription is required. Packets containing 222 mg of powdered fenbendazole are available from Amazon and pet stores under the brands Panacur and Safe-Guard. 222 mg tablets of unbranded fenbendazole are available from Amazon for about \$0.30 per tablet.

### **Anti-Cancer Activity: Preclinical and Clinical Evidence**

The anti-cancer effects of fenbendazole were discovered accidentally at John Hopkins University in a 2008 study of SCID mice. Researchers were investigating glioblastoma when they noticed that some of the mice failed to develop tumors. Upon investigation, they found that these mice had been pre-treated with FBZ. They also observed that lymphoma xenografts failed to grow in SCID mice that had been fed a diet containing fenbendazole and supplementary vitamins. These unexpected results led to further investigation into FBZ's anti-cancer potential, as well as similar benzimidazole derivatives such as mebendazole and albendazole.

FBZ has shown multi-targeted anti-cancer activity in preclinical studies. It binds to  $\beta$ -tubulin, disrupting mitotic spindle formation and impairing cell division; restores the function of the tumor-suppressor gene p53; induces G2/M phase arrest and prevents proliferation; induces apoptosis by reducing glycolysis, thereby starving cancer cells of energy; elevates reactive oxygen species (ROS); targets actively dividing cells while sparing normal quiescent cells; and inhibits angiogenesis and reduces the formation of new blood vessels that feed tumors.

FBZ has demonstrated *in vitro* and *in vivo* activity against lymphoma, glioblastoma, colorectal cancer, cervical cancer, hepatocellular carcinoma, ovarian cancer, breast cancer, lung cancer, melanoma, and prostate cancer. Most evidence is pre-clinical and anecdotal. Rigorous clinical trials have not been carried out.

### **Systematic Preclinical Investigations**

- Hepatocellular carcinoma (H4IIE cells): p21-mediated cell cycle arrest, apoptosis in rat model.
- Colorectal cancer (5-fluorouracil-resistant cells): glycolysis inhibition, reversal of drug resistance.

- Ovarian cancer (A2780, SKOV3): dose-dependent proliferation inhibition, apoptosis via mitotic catastrophe; in vivo tumor growth reduction.
- Melanoma, cervical, pancreatic, and other cell lines: evidence of microtubule destabilization and apoptotic induction in vitro.

## **Anecdotal Evidence**

A large amount of anecdotal evidence has resulted from the self-administration of FBZ in 2016 by a patient known as Joe Tippens, who reported complete remission of stage 4 small-cell lung cancer.

Tippens was a patient in a large clinical investigation of the immunotherapy agent Keytruda (pembrolizumab). After failing to obtain any improvement, his oncologist informed him that his lung cancer had progressed to stage 4 and that he had only a few months to live.

Tippens heard of a veterinarian who used FBZ to cure her stage 4 brain cancer after observing anti-cancer activity in dogs, so he decided to try it in combination with various immune system boosting substances. He developed the following regimen, now known as the Tippens Protocol, and obtained complete remission within 3 months.

- **FBZ: 222 mg per day**
- **Curcumin: 600 mg per day**
- **Cannabidiol oil: 25 mg per day**

The stack is taken once a day with a meal for three consecutive days, followed by four days of abstinence. The regimen is repeated as long as necessary. Tippens shared his story on social media and inspired many other cancer patients to use FBZ, which resulted in numerous anecdotal reports of its effectiveness. He remains cancer-free as of 2025 and regularly updates his followers about his health and cancer research.

## **7) Off-Label Use of Anthelmintics Against Cancer**

Following the discovery of MBZ's anti-cancer activity in 2002, a large amount of *in vitro* and *in vivo* preclinical research has been published showing that MBZ, FLZ, ALZ, and FBZ have significant chemotherapeutic potential in diverse malignancies. However, these findings were not made known to the public until Tippens reported his success with FBZ on social media in 2016.

Since then, many cancer patients learned about the anti-cancer activity of MBZ, FLZ, ALZ, and FBZ through social media and patient advocacy groups. The result has been the development of various self-administration protocols that include one or more of these drugs together with various synergistic adjunctive substances.

In view of their widespread availability, low toxicity, and multifaceted anti-cancer mechanisms, it is clearly in the public interest that large-scale clinical trials of MBZ, FLZ, ALZ, and FBZ should be carried out. Unfortunately, the cost of a clinical trial to repurpose a drug for oncological use is approximately \$100 million.

If the use of adjunctive substances or integration with standard oncology treatments is included in the trial, the cost will be substantially more. In view of the low cost of MBZ, FLZ, ALZ, and FBZ, there is no incentive for the suppliers of these drugs to finance a repurposing trial, hence a comprehensive investigation will depend on government funding and is unlikely to occur in the foreseeable future.

## 7) Efficacy of Benzimidazoles Against Cancer Types

Below is a summary of preclinical and early-phase clinical evidence for mebendazole (MBZ), flubendazole (FLZ), albendazole (ALZ), and fenbendazole (FBZ) against various cancers. Agents are listed in order of reported effectiveness. Rankings are based on potency in disrupting microtubule dynamics, induction of apoptosis in cell lines, and limited *in vitro* and *in vivo* early-phase data.

<u>Cancer Type</u>	<u>Effective Agents</u>
• Melanoma	MBZ, ALZ
• Colon Cancer	MBZ, FBZ
• Breast Cancer	MBZ, FBZ
• Lung Cancer	MBZ, ALZ
• Prostate Cancer	MBZ
• Pancreatic Cance	MBZ
• Ovarian Cencer	MBZ, FBZ
• Glioblastoma	MNZ, FLZ
• Osteosarcoma	MBZ, FLZ
• Leukemia	FLZ, MBZ, FBZ, ALZ
• Non-Hodgkin lymphoma	MBZ, FLZ, FBZ
• Multiple myeloma	MBZ, FLZ

Functional and integrative approaches have combined these agents with natural and repurposed adjunctive substances including cannabidiol, curcumin, and Vitamin D to support antioxidant and anti-inflammatory effects; ivermectin in combination protocols for immune modulation and tumor-inhibitory synergy; and standard chemotherapy and radiotherapy to exploit microtubule targeting and anti-angiogenic properties. Metformin, Prozac, and milk thistle have also been shown to enhance anti-cancer activity.

## **8) Adjunctive Substances That Enhance Anti-Cancer Activity**

According to social media and patient advocacy groups, anthelmintics are never self-administered as standalone chemotherapy, but are combined with several of the following adjunctive substances in variations of the Tippens Protocol.

### **a) Cannabidiol (CBD)**

CBD has demonstrated several anti-cancer effects in cell culture and animal models including: inducing apoptosis in cancer cells, inhibiting cancer cell proliferation and tumor growth, suppressing metastasis, and modulating tumor microenvironment including immune responses and inflammation.

CBD interacts with various molecular pathways including: endocannabinoid receptors CB1 and CB2, non-cannabinoid receptors such as TRPV1 and PPAR $\gamma$ , and signaling pathways such as PI3K/Akt, mTOR, and MAPK.

CBD has been studied in relation to several cancers including: triple-negative breast cancer, where it showed strong antitumor effects, glioblastoma, lung cancer, colon cancer, and prostate cancer, among others. CBD is available OTC from cannabis dispensaries in many parts in the USA, but is illegal in most other countries.

### **b) Curcumin**

Strong preclinical evidence from cell and animal studies shows that curcumin can inhibit tumor cell proliferation, tumor growth, and metastatic behaviors. It modulates multiple cancer-relevant signaling pathways, notably inhibiting NF- $\kappa$ B and downstream targets involved in inflammation, invasion, and metastasis.

Curcumin can also induce apoptosis and inhibit angiogenesis, which may contribute to reduced tumor progression and metastatic potential. It has been investigated across several cancer types including head and neck, colorectal, breast, and liver cancers. Curcumin is available OTC worldwide.

### **c) Vitamin D3**

Low vitamin D3 levels are associated with increased cancer risk, particularly colorectal, breast, and prostate cancers. Likewise, lab and animal studies show that vitamin D3 supplementation can slow tumor growth in many forms of cancer and enhance the activity of other chemotherapeutic agents.

Vitamin D3 can influence cell growth, differentiation and apoptosis, which are all crucial in preventing cancerous transformations. It may also block the formation of new blood vessels that tumors need to grow and may reduce metastasis. Vitamin D3 is available OTC worldwide.

### **d) Ivermectin**

Ivermectin targets chloride ion channels, which are more active in cancer cells. By increasing chloride influx, it disrupts cellular balance and triggers apoptosis. It can also induce oxidative damage in cancer cells and push them toward apoptosis.

Early-phase trials are underway, but large-scale studies are still needed to confirm safety and efficacy. Most countries require a prescription for human use, but many countries allow OTC sales for veterinary use. In the USA, Tennessee, Idaho, and Arkansas allow OTC sales. The usual cost per 3 mg tablet is between \$3.00 and \$10.00 under brand names Ivermax, Ivermicina, Iverheal, and Stromectol.

### **e) Metformin**

People with diabetes who take metformin have a reduced risk of developing cancer and lower cancer-related mortality. Metformin can act directly on cancer cells independently of blood glucose or insulin levels by altering cellular energy metabolism. *In vitro* and *in vivo* studies indicate that metformin can synergistically inhibit cancer growth, invasion, and metastasis in various cancers such as breast, liver, and neck cancers.

A prescription is required in the USA, the UK, Canada, and Australia. OTC sales are allowed in most other countries. The typical cost of a 500 mg metformin tablet is from \$0.05 to \$0.20.

### **f) Prozac**

*In vitro* and *in vivo* studies have shown that selective serotonin reuptake inhibitors such as Prozac and Celexa significantly enhance the ability of killer T cells to suppress tumor

growth across a range of cancer types including melanoma, breast, prostate, colon and bladder cancer, reducing average tumor size by more than 50%. These drugs increase serotonin levels in the toxic tumor microenvironment, which stimulates the killer T cells and increases their anti-cancer activity.

#### **g) Milk Thistle**

This herb has anti-oxidant and anti-inflammatory properties that protect liver cells from damage caused by anthelmintic agents such as albendazole, which are metabolized in the liver and can be hepatotoxic at high doses. The active components of milk thistle, silymarin and silibinin, have demonstrated *in vitro* and *in vivo* anti-cancer activity such as inhibiting cell cancer growth and enhancing the efficacy of other anti-cancer agents.

### **9) Summary and Conclusion**

An abundance of *in vitro*, *in vivo* and anecdotal evidence clearly shows that the anthelmintics MBZ, FLZ, ALZ, and FBZ have major anti-cancer activity against a wide range of malignancies with minimal adverse effects. Due to the low cost and lack of profit potential for the suppliers, clinical trials repurposing these drugs for use in oncology is unlikely. Hence their use in oncology will probably remain off-label for the foreseeable future.

In the absence of clinical trials, anecdotal evidence is of paramount importance and should not be overlooked or dismissed. Cancer patients who use self-administered protocols are, in effect, citizen scientists who are using their bodies as experimental vehicles for the investigation of these anthelmintics, yielding important information about new methods of treatment ~ often where standard chemotherapy has failed.

Insured patients will usually be under the care of an oncologist. Uninsured patients may seek guidance from a primary care physician. In view of the proven anti-cancer activity of MBZ, FLZ, ALZ, and FBZ, oncologists and primary care physicians should familiarize themselves with the research findings and anecdotal evidence in order to more effectively serve their patients. Cancer patients should familiarize themselves with the anecdotal evidence and learn about the results that have been obtained.

Translating the off-label oncological use of anthelmintics into clinical practice may be problematical. Oncologists may be required to follow a standard set of protocols and may not have the latitude to use alternative methods of treatment. Primary care physicians may feel that it beyond their range of knowledge or expertise to advise patients on the use of off-label anti-cancer drugs.

In the USA, the obstacle of price gouging mebendazole and albendazole by the supplier must also be addressed. Should clinicians accept the price gouging and pass it onto the insurance companies, or should they refer patients to a compounding pharmacy or foreign suppliers? Regardless of the obstacles, the fundamental ethical principle is that the patient's best interests must remain paramount at all times.

No specific references are provided in this report. Relevant information can be obtained from PubMed (<https://pubmed.ncbi.nlm.nih.gov>) by entering appropriate search terms such as "mebendazole AND cancer" or "breast cancer AND anthelmintics". Anecdotal evidence can be reviewed at The Medical Advisor: "Mebendazole, Fenbendazole and Ivermectin Cancer Success Stories" (197 Case Reports) and at The Cancer Advisor: "Ivermectin and Benzimidazoles in Advanced Cancer Treatment" (140 Case Reports). (<https://www.onedaymd.com/2025/01/fenbendazole-and-ivermectin-cancer.html>) and (<https://cancer.aestheticsadvisor.com/2025/07/anecdotal-case-reports-on-use-of.html>)

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