Melatonin and carcinogenesis in mice: The 50th anniversary of relationships

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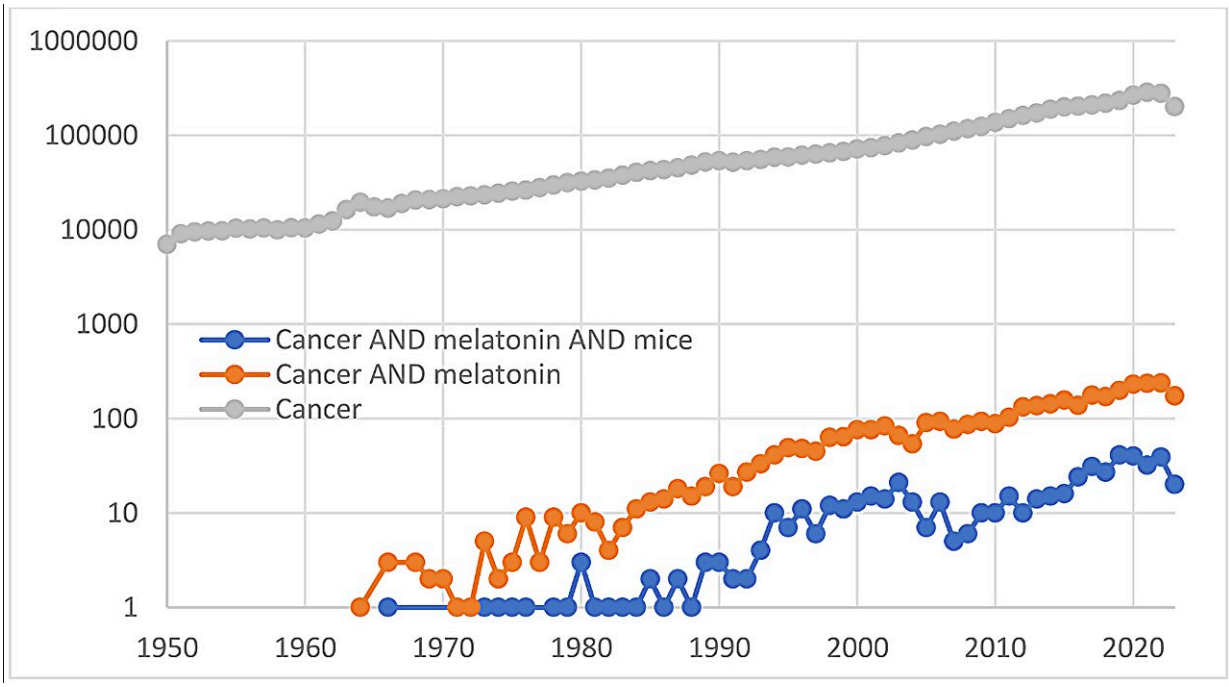

Trends in the annual numbers of publications. Credit: *Oncotarget* (2023). DOI: 10.18632/oncotarget.28537

A new research perspective titled "Melatonin and carcinogenesis in mice: the 50th anniversary of relationships has been published in *Oncotarget*.

Fifty years ago, in 1973, Vladimir N. Anisimov and co-authors

demonstrated for the first time an inhibitory effect of the pineal gland hormone melatonin on cancer in vivo, namely on transplantable mammary tumors in mice. Subsequently, it was shown in a number of studies that melatonin administration with drinking water at night inhibits chemically induced mammary carcinogenesis in mice and rats.

On the contrary, maintaining female mice and rats under round-the-clock lighting conditions, which suppresses the nighttime production of melatonin, stimulates spontaneous and chemical carcinogen-induced mammary tumor development.

As of today, the query "cancer AND melatonin AND mice" in Pubmed returns about 550 entries. In this new research perspective, researchers Vladimir N. Anisimov and Alexey G. Golubev from N.N. Petrov National Medical Research Center of Oncology outline the history of studies of melatonin effects on cancer in mice, with the main lesson being that the systemic in vivo effects of melatonin on animals may overwhelm the in vitro effects found using tissue explants or cell cultures.

"In particular, the timing of melatonin administration is of crucial importance for using the drug, which is freely available over [the] counter and thus needs no licensing for its applications in oncology," the researchers note.

More information: Vladimir N. Anisimov et al, Melatonin and carcinogenesis in mice: the 50th anniversary of relationships, *Oncotarget* (2023). DOI: 10.18632/oncotarget.28537

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