# INVESTIGATION OF ELECTROLYZED **KAQUN WATER** ON GROW OF HUMAN OVARIAN AND CERVIX CARCINOMA XENOGRAFTS IN SCID MICE

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## Introduction

Kaqun technology results a special matrix modified hydrogen depleted- thus oxygen enriched water in which oxygen is present in a stable form with a concentration of 18-25 mg/l.
In the present study the author investigated the influence of Kaqun water consumption on the in vivo intake, and growth-kinetic of human tumor-cells in SCID mice xenotransplants.

## Material and methods

Xenotransplantation of:

**Human ovarian ca cells A2780**
**+**
**Human cervical ca cells KB-3-1**

9 subjects drink normal water

9 subjects drink **Kaqun water**

5 subjects start drinking **Kaqun water** 14 days before transplantation

## Results

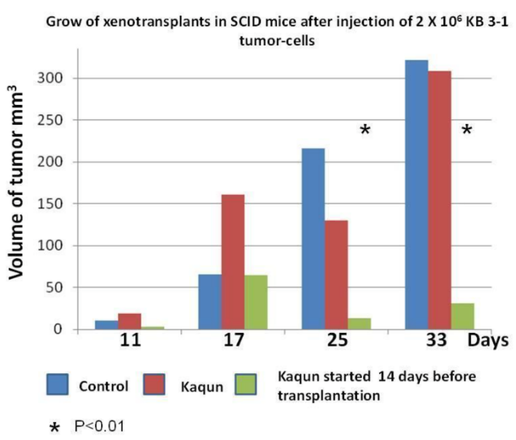



fig. 1b

* P<0.01

- Xenotransplantation of 4 x $10^6$ KB-3-1 tumor-cells, resulted tumor grows in all control and Kaqun water consuming animals.
- In the 2 x $10^6$ KB-3-1 tumor-cell transplanted group the tumors-grow decreased when mice started the Kaqun water consumption 14 days before cervix carcinoma cell transplantation.

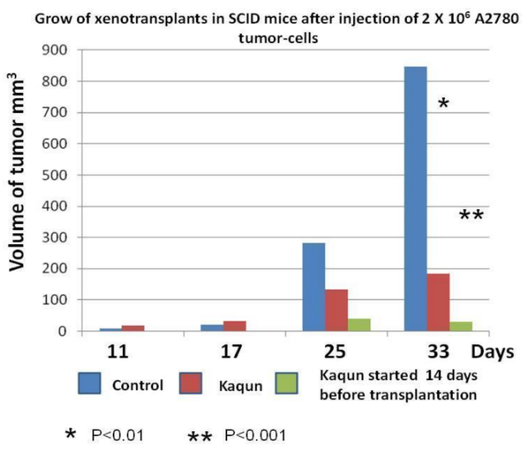



fig. 2b

* P<0.01 ** P<0.001

- Xenotransplantation of 4 x $10^6$ A2780 tumor-cells resulted grows of tumors in all control animals.
- Intake of 4 x $10^6$ A2780 tumor-cells was detected in a 7 days delay in the Kaqun treated groups, and accordingly the grow of tumor-cells was also postponed.
- Grow of tumors after 4 x $10^6$ A2780 tumor-cell transplantation was not detected at 3 of 14 mice in the Kaqun treated groups, while at all control mice (n=9) growing tumors were detected.
- Intake of 2 x $10^6$ A2780 tumor-cells was detected in all tumor growing animals in a 7 days delay compared to the 4 x $10^6$ groups.
- Drinking of Kaqun water significantly decreased the growth of ovarium-cell carcinoma at 2 x $10^6$ A2780 tumor-cell transplanted animals (Fig 2b).
- The most significant ovarium carcinoma inhibiting effect was seen in the group of 2 x $10^6$ A2780 cell transplanted mice, when starting Kaqun water consumption 14 days before xenotransplantation (Fig. 2b).

### Tumor histopathology

Ovarium carcinoma of control mice both18 days after xenotransplantation of 4 x $10^6$ A2780 tumor-cells and obtained from mice sacrificed at day 26 or 33, showed a high mitotic activity, while picnotic, damaged tumor-cells with fibrotic necrosis were detectable in xenotransplantats of Kaqun treated animals.

Xenotransplantated tumors of 4 x $10^6$ KB-3-1 showed high mitotic activity in the cervix carcinomas of control mice (Fig 1), while high number of apoptotic, damaged cells was detectable in xenotransplants of Kaqun treated animals (Fig 2).

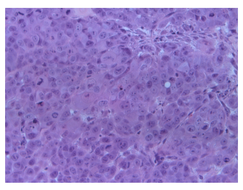


Fig 1

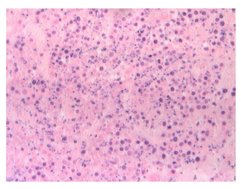


Fig 2

## Conclusion

**In the Kaqun water - consuming groups:**

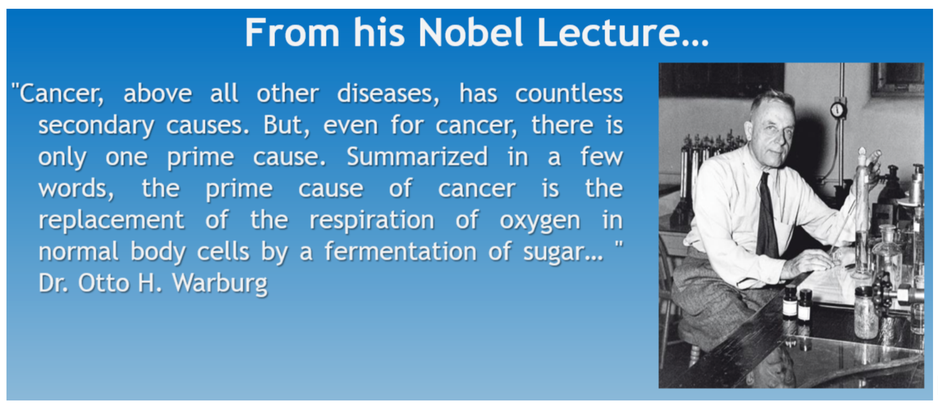
**Decreased growth kinetics**
**Decreased rate of tumor engraftment**
**Lower frequency of death**
**Tendency of tumor regression**

**might be consequences of water matrix modification caused in the mice by the consumption of the specially matrix - modified Kaqun water**

## Discussion

Recent investigations suggest that oxygen depletion activates signaling pathways, such as HIF1, that promote cancer cell survival and tumor growth. Insights into mechanisms involved in ROS signaling may offer new ways to facilitate discovery of cancer-specific therapies [1].

Recently it became accepted that hypoxia enhances angiogenesis facilitates tumor growth and thereby reduces the efficacy of chemotherapy and radiotherapy [2,3].

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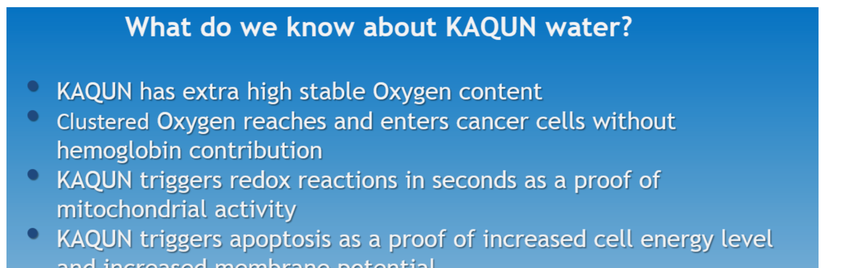
Based on clinical investigations, it is supposed that drinking of Kaqun water and bathing in it results the strengthens the immune system, triggers the regeneration of the body, reduces hypoxia in the body, can improve micro-circulation, can impact favorably the metabolic processes on the level of cells and can intensify the effect of the chemo and irradiation therapies and moderate their side-effects.

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Drinking Kaqun water increase the tissue $pO_2$ level within 4-5 minutes.

The short time needed for increase of $pO_2$ suggests that the involvement of **Grotthus mechanism of proton conduction** [4], **aquaporins** and **gramicidin-like ion channels**, present in the gastrointestinal tract, in the cell mambranes and in the mitochondria (to perform oxidative fosforidation [5,6]), may be the main determinants of the mode of action of waters made by special electrolysis as Kaqun water.


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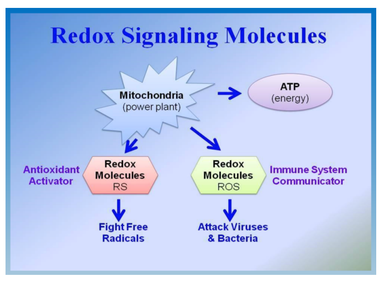


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**Biography:**

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