Studies on the Fundamental Theory of Bigu (Food Abstinence)—Preliminary Experimental Observations of Cellular Bigu

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Clinical studies as well as hundreds of case reports have indicated that Yan Xin Life Science Technology has enabled human participants to live a normal life with little or no food intake for prolonged periods—a state referred to as bigu. Bigu is described in historical records as "taking in qi to avoid food," and is regarded as a special technique to achieve a long and healthy life. In this study, experiments were designed to study whether cells in vitro can survive without commonly acknowledged essential nutrients after receiving external qi treatments from Dr. Yan Xin, a chief physician and a renowned life scientist. Results reported here indicate that mouse hybridoma cells can survive in Dulbeco's modified Eagles medium without serum or in phosphate-buffered saline buffer without other nutrient ingredients after qi treatment. These results are the first evidence that a cellular equivalent of the human bigu phenomenon or cellular bigu phenomenon may occur.

Keywords: *bigu, Yan Xin, Yan Xin Life Science Technology, qi, cellular bigu*

According to the Encyclopedia of China (Encyclopedia of China Editorial Board, 1992), "Bigu means abstinence from food. It is a special health-preserving technique to seek longevity through strict abstinence from food" (p. 21). Chinese history books also describe bigu as "taking in qi to avoid food" and have recorded a number of bigu cases with apparent health and longevity benefits (Encyclopedia of China Editorial Board, 1992). Although bigu has historically been a rare phenomenon, in the past 15 years, hundreds of people have reported experiencing bigu phenomena in North America and elsewhere following contact with Yan Xin Life Science Technology (Participants in Yan Xin Life Science Technology-Optimized Caloric Restriction Experiments, 2000). Since the late 1980s, a number of Yan Xin Life Science Technology bigu cases have been clinically observed and confirmed in

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China and the United States ("Human Body Science Laboratory at Beijing Normal College," excerpted in Xu, 1988; Yan, Li, Lu, & Chin, 2000).

Generally speaking, bigu refers to a state in which the intake of nutrition is either much less than the minimum amount of nutrition required to maintain normal life activities or no nutritional intake at all. There are several levels of bigu. *Standard bigu* entails absolutely no food or water intake. *Relatively standard bigu* means drinking water only but no food. *Nonstandard* or *basic bigu* means a supplement of an extremely small amount of nutrition that is significantly less than the minimum required to maintain normal life activities. Compared with historical reports of bigu, the bigu phenomena reported among Yan Xin Life Science Technology cases are unique in the ease of entering into the bigu state in addition to the observation that the total number of reported cases is larger and individual cases tend to be more long lasting (Participants in Yan Xin Life Science Technology-Optimized Caloric Restriction Experiments, 2000).

Although bigu phenomena are only beginning to be studied scientifically, the mechanism by which restricted caloric intake benefits health is already under investigation by multiple laboratories. In the ancient Chinese literature, it is reported that a person who only relied on qi for nourishment should live much longer with good health and extraordinary abilities (Encyclopedia of China Editorial Board, 1992). Recently, many studies on the effects of caloric restriction on multiple physiological parameters, including longevity, have been published. The results indicate that consumption of a calorically restricted diet by a variety of species results in greater health and increased life span compared with controls that are maintained on a diet in which intake is self-regulated (Courzin, 1998). In the current study, experiments were designed to determine if correlates of the bigu phenomena could be observed at the cellular level following exposure of cells in tissue culture to external qi.

Methods and Sample Preparation

External Qi Treatment

Before the external qi experiments started, a room inside the University of California at San Diego (UCSD) medical center was designated the external qi treatment room, in which test samples would be treated from a distance with external qi emitted by Dr. Yan Xin (Yan is his family name), a chief physician and a renowned life scientist. Dr. Yan informed the participating researchers in advance of the exact time to put the samples in the external qi treatment room for external qi treatment. Test samples, which included cells in minimal nutrient media and separate media samples for absorption analysis, were enclosed in a Styrofoam container and placed in the external qi treatment room for 30 minutes during each external qi treatment session. Control samples were also enclosed in a separate Styrofoam container and were placed in a room in a different building.

Cell Culture

Hybridoma cells were prepared by fusion of Sp2/0 murine myeloma cells with murine spleen cells preimmunized with HIV TAT protein. The S2B4C4 cell line is one of the hybridoma cell lines producing anti-TAT monoclonal antibodies after three rounds of anti-TAT antibody ELISA screening and cellular cloning. S2B4C4 cells were routinely maintained in Dulbecco's modified Eagles medium (DMEM) with high-glucose formula (4.5 g glucose/liter; GIBCO) supplemented with L-glutamine (2 mM; GIBCO), penicillin (50 IU/ml; GIBCO), streptomycin (50 ug/ml; GIBCO) and fetal calf serum (FCS, 10% vol./vol.; GIBCO) in an 8% CO_2 incubator at 37°C. For external qi experiments, S2B4C4 cells were washed three times with phosphate-buffered saline (PBS) by centrifuging the cells in PBS at 200 g for 5 minutes and discarding the supernatant each time. After washing, the S2B4C4 cells were suspended in PBS or DMEM without supplements. The washed S2B4C4 cells were counted and checked for viability by Trypan Blue exclusion staining. Then the S2B4C4 cells were seeded into 24 well cell culture plates (GIBCO) at 5×10^3 cells per well in PBS or in DMEM without supplements for both the external qi treatment group and the control group. The cells were taken to the external qi treatment room or control room for about 2 hours and then were put in an 8% CO_2 incubator at 37°C for continued incubation except when removed periodically for examination for about 30 minutes at a time. During the 30-minute examination time, the S2B4C4 cells from one well were suspended by repeated pipetting and stained with Trypan Blue at a 4:1 dilution for 2 minutes. The stained and unstained cells were counted using a hemocytometer and the percentage cell viability calculated (the

Table 1. S2B4C4 Hybridoma Cells' Survival in PBS

Item	1 Day	2 Days	6 Days	14 Days
Control (%)	1	0		
Qi treated (%)	99	92	85	33

Table 2. S2B4C4 Hybridoma Cells' Survival in DMEM

Item	2 Days	3 Days	3 Weeks	8 Weeks
Control (%)	68	0		
Qi treated (%)	99	99	98	65

number of unstained cells per 100 total cells of stained and unstained). For all cell culture samples (test and control), there was no medium change during the entire experiment period.

Results

The S2B4C4 hybridoma cells in PBS without nutrients incubated in the 8% CO_2 incubator at 37°C did not survive for more than 2 days. In contrast, S2B4C4 hybridoma cells exposed to external qi treatment survived more than 14 days under the same incubation conditions (see Table 1). The S2B4C4 hybridoma cells of the qi treatment group looked brighter under the reverse phase contrast microscope compared to the control group.

When the S2B4C4 hybridoma cells were placed in DMEM with the same incubation conditions, the control S2B4C4 hybridoma cells did not survive for more than 3 days, but 65% of the qi-treated S2B4C4 hybridoma cells survived for more than 8 weeks (see Table 2). The surviving S2B4C4 hybridoma cells in the qi treatment group appeared shiny and round when observed under the reverse phase contrast microscope.

Discussion

It has been reported that external qi of Yan Xin Life Science Technology can affect many kinds of materials and processes, such as killing cancer cells (Yan, Fong, Jiang, et al., 2002a, 2002b), preventing aging (Yan, Fong, Wolf, et al., 2002; Yan, Fong, Wolf, Brackett, Zaharia, Wolf, Lerner, Lee, Parker, et al., 2002; Yan, Fong, Wolf, Wolf, & Cao, 2001; Yan, Fong, Zaharia, et al., 2001), changing the structure and properties of water and effectuating crystallization of proteins (Yan et al., 1999), changing the structure and properties of DNA and RNA (Yan, Zheng, Zhou, Lu, & Li, 1988), affecting the structure and properties of cell membranes (Yan, Zhang, Ying, & Lu, 1988), affecting the half-life of radioactive americium 241 (Yan, Zhang, Wang, Zhu, & Lu, 1988; Yan, Lu, Jiang, Wu, et al., 2002), and enhancing industrial antibiotics production yields (Li et al., 1990).

Here, we describe changes in S2B4C4 hybridoma cells following qi treatment. Although hybridoma cells cannot normally survive for more than 2 to 3 days in nutrient-restricted media, external qi-treated cultures had a 33% survival rate after 2 weeks in PBS and a 65% survival rate after 8 weeks in DMEM.

These experiments are preliminary and raise many questions for further studies. Addressing these questions will help us understand the mechanism of the enhanced survivability. For instance, by testing the absorption spectrum of the supernatants from the qi-treated cell cultures and the control cell cultures, it will be possible to see if they match the spectra from samples that had no cell contact. Moreover, in future experiments, we will determine if changes in the culture medium alone are sufficient to support cell survival by testing the qi-treated culture medium on cells not previously exposed to qi treatment. Further chemical analysis of the culture medium may also provide insight into the mechanism by which reduced dependence on nutrients was observed in qi-treated cultures. In addition, more extensive viability studies will help us determine if the surviving cells are functionally similar to the other cells or whether other characteristics, in addition to survivability in serum-free media, are altered following qi treatment.

We are still in the beginning stages of understanding qi scientifically. Our data in this study and earlier reports indicate that, on one hand, qi can be measured and studied scientifically using precise lab instruments; on the other hand, qi also has certain properties that are quite different from ordinary energy sources with which we are familiar. External qi emitted from Dr. Yan has been reported to affect many different materials and processes over long distances (e.g., Zhu, Ren, Hu, & Lu, 1993). Some experiments suggest that the effects of external qi may be spatially focused as well (Yan et al., 1988). Further experiments may help us resolve these puzzles and provide further clues as to the nature of qi and how it interacts with matter.

Conclusions

Our results indicate that mouse hybridoma cells can survive for extended periods in serum-free DMEM without supplements or in PBS buffer without other nutrient ingredients after external qi treatment from Dr. Yan. These findings suggested that a cellular equivalent of the bigu phenomenon, or cellular bigu phenomenon, occurred. Such cellular bigu would provide a possible corollary at a more fundamental level for human bigu.

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