How does FWGE work?

1. Action on specific cellular targets:

ICAM-1 (adhesion molecule 1)
To get through the vascular wall and reach the tumor cells, immune cells need a cellular mediator (ICAM-1). In tumor cells there is less ICAM-1 than in normal cells, so the infiltration of leukocytes in the tumor tissue is defective. The FWGE produces an increase in the concentration of this mediator, helping leukocytes to infiltrate the tumor.

MHC-1 (major histocompatibility complex class 1)
Tumor cells can trick the immune system masquerading themselves as normal cells, by the expression of a protein (MHC-1), to avoid being recognized by natural killer cells. FWGE reduces the MHC-1, thus the NK cells can recognize and destroy them decreasing their metastatic activities as well.

2. Hinder the use of glucose to produce DNA (basic molecule in the cell replication process), **diverting their metabolism to the production of fatty acids,** which help fight weight loss usually associated with cancer processes.

3. Actions on secondary cellular targets:

RR (ribonucleotide reductase): Blocking this enzyme contributes to the weakening in the synthesis of DNA in cancer cells.

PARP (polyadenosine diphosphate ribose): inhibition of the PARP enzyme damaging the repair of DNA strands in tumor cells.

COX (cyclooxygenase): It seems that there is also a certain inhibitory action of cyclooxygenase COX-1 and COX-2, which are overexpressed in some types of tumors.

Acting on the cellular immunity