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Recent advances on obesity pharmacotherapy

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Obesity is a chronic metabolic condition resulting from the excessive accumulation of Adipose Tissue (AT) in the body. It is related with increased mortality and morbidity with associated conditions, like diabetes, cardiovascular diseases and the development of certain types of cancers, including esophageal, pancreatic, colon and breast cancers. The use of approved pharmacotherapy is suggested in obese or overweight adults with at least body weight-related comorbidity (e.g. type 2 diabetes, hypertension or dyslipidaemia). However, very few obese people (Body Mass Index (BMI) of ≥ 30 kg/m2) or overweight (BMI of ≥ 25 kg/m2) can effectively abide by the prescribed drug therapy or follow life style interventions and even fewer can sustain them over a long period of time. One of the approved drugs in obesity management is the compounded naltrexone/bupropion, which was developed by joining these two brain regions acting agents, already approved for other indications (naltrexone for opioid and alcohol addiction and bupropion for depression and smoking cessation), in a single solid pharmaceutical formulation, which regulates food intake and body weight; this combination is available under the trade name Contrave® in the US or Mysimba® in Europe (Orexigen Therapeutics, Inc.). There are, though, concerns regarding cardiovascular-related side effects of these drug carriers. Thus, there is a need for the development of new forms of pharmacotherapy (new treatment regimens) to develop effective, safe, long-term effective therapy for the treatment of obesity.

Our research team is currently working on the production of multilayered tablets of naltrexone/bupropion, comprising of combinations of biopolymers with physicochemical properties compatible with the stereoelectronic features of both naltrexone and bupropion. Preliminary data indicate that these preparations lead to the release of the compounded two drugs by an overlapping sustained/controlled mechanism, which is expected to result to effective anti-obesity therapy with less adverse effects.

Biography

Marilena Vlachou is an Associate Professor at the National and Kapodistrian University of Athens (NKUoA), Greece. She obtained her Pharmacy and PhD (Pharmaceutical Technology) degrees from the NKUoA. Just prior to obtaining her PhD degree she moved to the University of Rhode Island, U.S.A., as a Visiting Research Scientist, to conduct cutting edge research related to Pharmaceutical Technology techniques. In NKUoA, she teaches, at both undergraduate and postgraduate level, courses related to the fields of Pharmaceutical Technology, Physical Pharmacy and Nanotechnology. She has co-authored the textbook entitled "Pharmaceutical Technology I: Principles of Physical Pharmacy and Nanotechnology" and many book chapters. She has presented her research work in more than seventy (70) International Scientific Conferences and she has published more than sixty five (65) articles in peer-reviewed Journals.

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