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New approaches towards the pharmacological treatment of obesity

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Obesity is a condition defined as excess body fat due to positive energy balance. It is often associated with metabolic diseases, such as hypertension, type 2 diabetes, and coronary heart disease. Obesity also increases the risk of several malignancies in colon, breast, pancreas, and endometrium. Treatments reap condition, including type 2 diabetes, hypertension, hyperlipidemia, and sleep apnea.

Presently, six drugs, including two peptides (liraglutide and semaglutide) are approved for weight management in adults: orlistat, phentermine, phenterminetopiramate and naltrexone-bupropion. Orlistat is approved in both Europe and USA and its mode of action is by energy waste. Phentermine, phenterminetopiramate and lorcaserin are approved only in the US and their action is related to appetite reduction. The same mode of action is followed by naltrexone-bupropion and liraglutide, which are approved in both Europe and USA.

From the aforementioned drugs some are approved for short-term management (< 6 months) whilst others are approved for long-term management (> 12 months). The drug therapy is personalized and modifed for each individual patient, depending on needs, contraindications, and cost. Benefts of these drugs should be assessed regularly (every 2-3 months) and a different drug treatment should be considered if at least 5% of body weight is not lost after 3 months of therapy.

As already mentioned, one of the approved drugs in obesity management is the combination of naltrexone/bupropion, which was developed by joining these two

To conclude, obesity is a multifactorial disease, which poses serious health risks. Its timely and correct treatment is a panacea for the course of mental and physical health. N

the treatment of obesity, and above all, to individualize therapy. However, the formulation development and the excipient selection are time consuming processes that delay the release of the drug to the market.

Our research team is currently working on the production of multilayered tablets of naltrexone/bupropion, which can of er anti-obesity treatment. This is envisioned to take place by using, for the preparation of the proposed tablets, combinations of biopolymers with physicochemical properties compatible with the stereoelectronic features of both naltrexone and bupropion. This will lead to the release of the compounded two drugs by an overlapping sustained/controlled mechanism. This combined release mechanistic model, which will be used for the frst time, in the case of the naltrexone/bupropion system, 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 state of the art research related to Pharmaceutical Technology techniques. In NKUoA, she teaches, at both undergraduate and postgraduate level, courses related to the felds 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 sixty (60) International Scientific Conferences and she has published more than ffty (50) articles in peer-reviewed Journals..

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