Development of small fat taste agonist (fta) from linoleic acid to fight obesity and overweight

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Obesity and overweight are one of the main priorities of world public health. Initially confined to wealthy countries, it now affects developing nations as well. In a recent past, it has been shown that receptors on the tongue, particularly CD36 and GPR 120, play a crucial role in detecting fats and regulating satiety. A dysfunction in these receptors, often due to genetic polymorphisms and finally by addiction, can impair fat taste perception and lead to overeating.[1] In response to this epidemic, the start-up EktaH aims to develop soft pharmaceutical strategies to enable healthy people in order to stabilize or to decrease their weight by targeting the sensory mechanisms involved in fat perception. To harness this sensory pathway, several new fat taste agonists were synthesized to the laboratory, and some of them demonstrated their ability to activate the CD36 receptor. Among these compounds, the NKS3 and NKS5 derived from linoleic acid (LA),[2] has shown significantly increases the concentrations of anorexigenic peptides (CCK and PYY), at levels comparable to or even higher than those induced by natural LA (cf. Figure 1). These compounds confirm its potential as a sensory activator capable of simulating a strong and rapid satiety signal. The recent development of new FTA from natural products for less intrusive, more affordable, and innovative treatments for obesity by leveraging lipid taste receptors able to modulate appetite at its sensory origin, was herein reported.

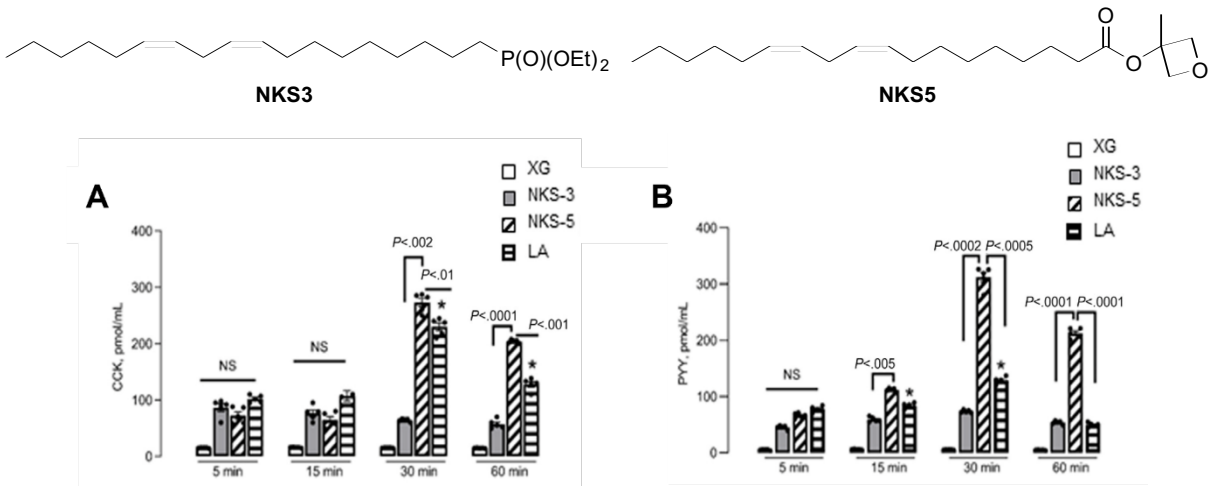

Figure 1: Concentration of anorexigenic peptides CCK (Fig A) and PYY (Fig B) over time with NKS3, NKS5, LA, and XG (xanthan gum)

References

[1] Schwartz, G. J. *Obes. Res.* **2004**, *12*, 102S-106S.
[2] Khan, N.; et al. Patent WO/2019/229005; US20210155640A1.