

Improvement of taste perception by homoeriodictyol in cancer patients after chemotherapy

Abstract

About 40-85% of cancer patients undergoing chemotherapy suffer from taste dysfunctions which impair their appetite, nourishment and quality of life. Although this side effect of chemotherapeutics, like platinum (Pt) compounds, can ultimately increase mortality due to deficient energy and nutrient intake, it is not known how chemotherapeutics affect taste cells and no effective therapies are available yet. Taste dysfunctions due to chemotherapy are often described as overly metallic and bitter taste. We hypothesize that homoeriodictyol (HED), one of the strongest, yet known natural bitter-masking agents, can help cancer patients overcome increased bitter taste perception. In a clinical study, cancer patients treated with Pt-based chemotherapy will be exposed to a rinse-and-spit solution of HED. The bitter-masking activity of HED, food and nutrient intake, and body composition will be assessed during the intervention. The effect of chemotherapeutics and HED on taste and oral cells on a cellular and molecular level will be studied in vitro studies using human 2D and murine 3D cell culture models, i.e. organoids differentiated into taste buds. By combining oncology, molecular biology, and nutritional sciences we will identify mechanisms of action of Pt-based chemotherapeutics and HED on taste perception and taste cell function, and elucidate a new approach to treat taste dysfunctions in cancer patients in order to improve taste perception, food intake and quality of life.

Scientific disciplines:

302055 - Oncology (70%) | 106023 - Molecular biology (25%) | 303009 - Nutritional sciences (5%)

Keywords:

taste dysfunction, platin based chemotherapy, homoeriodictyol

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Further links about the involved persons and regarding the project you can find at

https://archiv.wwtf.at/programmes/life_sciences/LS18-059