# Evaluation of the sensory characteristics of functional ingredients produced from milk

**Food for Health Ireland (FHI) searches for ingredients that promote infant development, help to control weight and related health issues, boost immunity or support healthy ageing. The research also includes consumer studies on functional foods, which is critical for product development and successfully negotiating market opportunities. FHI links the expertise of researchers from universities with the marketing power of industry partners to develop new functional food ingredients and products.**

In particular, FHI partners with University College Dublin (UCD) to investigate the potential of dairy protein hydrolysates to become part of the functional ingredients market. Indeed, these products have numerous improved characteristics over un-hydrolysed dairy proteins e.g. improved gelation and foaming abilities in food systems and enhanced nutritional properties in the form of bioactive peptides. However, the hydrolysis process can produce bitter off-tastes in dairy proteins, limiting their potential use as food ingredients. This is a result of the alteration of the native proteins to short chained peptides with exposed hydrophobic amino acids. Therefore, the research works need to screen dairy protein hydrolysates according to their sensory character prior to application in food products. For taste evaluations, the scientists from UCD use an ASTREE Electronic Tongue from Alpha MOS.

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For this specific study, the objective was to construct a bitterness prediction model using the e-tongue for the assessment of dairy hydrolysates to reduce the reliance on sensory panel analysis. The bitterness values predicted by the e-tongue showed strong correlation with a trained sensory panel in the evaluation of dairy protein hydrolysates. The quantification models were robust enough to predict the relative bitterness on the 15 point scale of both whey and casein samples and thus to decide whether to select the products as potential food ingredients or not.

## Food for Health Ireland
### University College Dublin

**Activity**
Research centre on high quality and healthy food (mainly milk)

**Context**
Taste and bitterness evaluation of dairy protein hydrolysates prior to potential use as food ingredients

**Equipment**
ASTREE Electronic Tongue

**User contact**
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Dr Thelma Egan

**Website**
http://www.fhi.ie/
http://www.ucd.ie/

Jessica Newman, PhD at FHI / UCD, comments: “To date the main method for the evaluation of taste has been the trained sensory panel, but in recent years, a number of electronic tongues have been developed as an alternative method. The benefits of using such a tool over a trained sensory panel are that it is rapid, reliable and does not suffer from sensory fatigue. The advantage of the e-tongue is that it is less time consuming than a sensory panel and can screen potentially toxic or unpleasant samples.”