# Reviewing the palaeodietary reconstruction of the Mesolithic site of El Collado (Spain) with Compound Specific Isotope Analysis of Amino Acids

Maria Fontanals-Coll*[1], Silvia Soncin[1], Helen M. Talbot[1], André C. Colonese[2], and Oliver E Craig[1]

[1]BioArCh, Department of Archaeology. University of York. (BioArCh, UoY) – BioArCh - University of York Environment Building, Wentworth Way, Heslington York YO10 5NG, UK, United Kingdom

[2]Department of Prehistory - Institute of Environmental Science and Technology. Universitat Autònoma de Barcelona (Dept. Prehistory - ICTA. UAB) – Department of Prehistory Edifici B Facultat de Filosofia i Lletres Carrer de la Fortuna, 08193 Institute of Environmental Science and Technology (ICTA) ICTA-ICP, Edifici Z, Carrer de les columnes Universitat Autònoma de Barcelona 08193 Bellaterra, Barcelona, Spain, Spain

**Abstract**

Carbon and nitrogen stable isotope analysis of bone collagen from Mesolithic human individuals of the Iberian Peninsula typically reflects a substantial contribution of terrestrial resources, with variability likely related to environmental contexts. Unfortunately, bulk collagen stable isotope analysis lacks the necessary resolution to quantify dietary components or detect low, but still significant, marine consumption, a fact that could bias the dietary reconstruction of Mesolithic people. Carbon and nitrogen isotopic analysis of single amino acids offers a more direct means to discriminate different dietary sources, in particular marine from terrestrial sources of protein. By applying multi-isotopic statistical models, we can improve quantitative estimations not only of protein but also of caloric intake, as well as exploring levels of protein in diets and their socio-ecological implications. Here we present the many possibilities of Compound Specific Isotope Analysis of Amino Acids (CSIA-AA) to offer an unprecedented insight into the dietary reconstruction of the Mesolithic site of *El Collado* (Spain). Results will certainly shed light on the proper proportion of marine resources that this population, inhumed in one of the most impressive shell-middens of the NE Iberia, consumed on a regular basis.

**Keywords:** Compound Specific, Stable Isotopes, Amino Acids, Mesolithic, NE Iberian Peninsula

*Speaker