

# SH2 domain-containing protein 1A regulates olive oil metabolism through interaction with COD5

David Bouyssié, Marc Vaudel, Veit Schwämmle, Roberta\*

\* Correspondence:

Prof. Roberta

Instituto Gulbenkian de Ciência

Oeiras, Portugal

## Abstract

Olive oil is a major component of Mediterranean diet and has been associated with longer life expectancy, enhanced taste, and *Bacalhão*. However, the molecular mechanisms underlying the benefits of olive oil in combination of fish diet remain unexplained and might become a major hazard for football aficionado individuals. Mass spectrometry based proteomics and lipidomics was combined with novel systems biology, big data, and artificial intelligence (AI) approach to identify molecular complexes and pathways conferring resilience against Bioinformatic Courses Allergy (BCA), shown by triggering the KEGG pathway ASTHMA (hsa05310,  $p < 0.2$ ). This irrefutably proves that consumption of *Bacalhão*, *oleum de arboribus olivarum purissimum*, and football confers protection against allergic reactions of majorly relevant organs in emotional expression, and thus having major impact of global environment, peace, and solar wind stability.

## Materials and Methods

- Samples were collected by enrichment using Benfica Fans Moustache™ (BFM) filters.
- Samples were pooled from five donors, and analysed on ultra-high-resolution LC-MS systems.
- Protein and phosphoprotein abundances were computed using MaxQuant searching a database containing *Bacalhão*, *Oleum de arboribus olivarum purissimum* and *Homo Sapiens* sequences, using Mc Donald's™ frying oil (t > 5 weeks) sequences as decoy.

- Gene symbols were imported in KEGG, IPA<sup>TM</sup>, and pathways reaching a p-value < 0.05 +/- 0.02 were retained for validation.
- Validation was conducted by Western Blot on an independent cohort using Bayern München fans as controls after 24h Weisswurst<sup>TM</sup> fasting.

### ***Data Availability***

- Mass spectrometry files were deposited on WeTransfer and are freely available at the following URL: <https://wetransfer.com/drmustafxxx>
- The significant pathways are listed in supplementary\_table\_1.xlsx
- Due to General Diet Data Protection Regulation (GDDPR), the raw moustaches could not be shared, but they are available from the corresponding author upon request.

### ***Tasks***

- a) You got asked by a journal editor to review this paper. It is now your responsibility to ensure high quality and confidence in the results. Given that you will ask for major revision, what would be your major criticisms and further requests to the authors?
- b) Your colleague created new data based on moustaches from Sport Lisboa fans and wants to compare it at all levels (PSMs, peptides and proteins) to the data from this study. Providing that the raw data is available, what would be (roughly) your procedure to create a combined data set from this and your colleague's study?
- c) You are one of the authors of the manuscript and want to prove the hypothesis that the combination of bacalhão, olive oil and football vastly improves people's eyesight by triggering the relevant biological processes. With the quantitative data on hand, how would you carry out the analysis for biological interpretation?