## Accepted Manuscript

Reverse phase protein arrays for the identification/validation of biomarkers of beef texture and their use for early classification of carcasses

Mohammed Gagaoua, Muriel Bonnet, Marie-Pierre Ellies-Oury, Leanne De Koning, Brigitte Picard

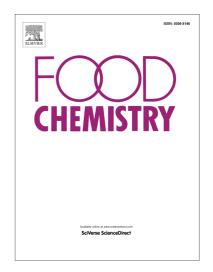
PII: S0308-8146(18)30079-7

DOI: https://doi.org/10.1016/j.foodchem.2018.01.070

Reference: FOCH 22259

To appear in: Food Chemistry

Received Date: 19 October 2017 Revised Date: 4 January 2018 Accepted Date: 9 January 2018



Please cite this article as: Gagaoua, M., Bonnet, M., Ellies-Oury, M-P., De Koning, L., Picard, B., Reverse phase protein arrays for the identification/validation of biomarkers of beef texture and their use for early classification of carcasses, *Food Chemistry* (2018), doi: https://doi.org/10.1016/j.foodchem.2018.01.070

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## **ACCEPTED MANUSCRIPT**

# Reverse phase protein arrays for the identification/validation of biomarkers of beef texture and their use for early classification of carcasses

Mohammed Gagaoua<sup>1</sup>\*, Muriel Bonnet<sup>1</sup>, Marie-Pierre Ellies-Oury<sup>1</sup>, Leanne De Koning<sup>2</sup>,

Brigitte Picard<sup>1</sup>

<sup>1</sup> Université Clermont Auvergne, INRA, VetAgro Sup, UMR Herbivores, F-63122 Saint-Genès-Champanelle, France

<sup>2</sup> Institut Curie centre de recherche, Université de recherche PSL Plateforme RPPA, 26 rue de l'UlM, 75248 Paris, France

\*Corresponding author: Dr. Mohammed Gagaoua

Email: gmber2001@yahoo.fr; mohammed.gagaoua@inra.fr

Phone: +33 473 624 239. Fax: +33 473 624 639.

Running title: Protein biomarkers as discriminators of beef texture

#### **Abstract**

The validation of biomarkers and tools for the prediction of beef texture remains a challenging task. In this study, reverse phase protein arrays (RPPA) quantified 29 protein biomarkers in the m. *Longissimus thoracis* of Charolais cattle sampled early *post-mortem*. Myosin heavy chain 1 (MHC1, slow-oxidative fibers) and Retinal dehydrogenase 1 (ALDH1A1, oxidative enzyme) discriminated between tender and juicy *vs.* tough meat with residues classes and are validated as prime biomarkers of beef texture. Several proteins belonging to energy metabolism, heat shock and oxidative stress, cytoskeletal, cell signaling and apoptosis were related with tenderness. Among the unusual proteins, four and a half LIM domains 1 (FHL1) and Tripartite motif protein 72 (TRIM72) correlated respectively negatively and positively with beef tenderness. Principal component regression was used for the first time to explain beef texture traits using biomarkers. The results are very promising as they revealed sophisticated mechanisms behind the tenderizing process.

Keywords: Biomarkers; RPPA; Meat texture; young bulls; Relationships; Clustering

#### Download English Version:

# https://daneshyari.com/en/article/7585812

Download Persian Version:

https://daneshyari.com/article/7585812

<u>Daneshyari.com</u>