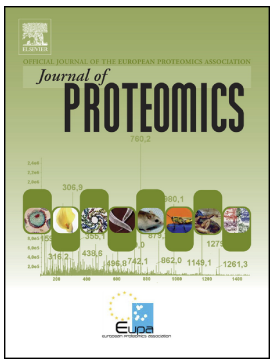


# Longissimus dorsi muscle label-free quantitative proteomic reveals biological mechanisms associated with intramuscular fat deposition

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**Significance**

Intramuscular fat is the amount of fat deposited inside muscle and plays an important role in human health and meat quality attributes, influencing energy metabolism of skeletal muscle, as well as, tenderness, flavor, and juiciness of beef. We performed for the first time the utilization of integrated transcriptome-assisted label-free quantitative proteomic approach using High Definition Mass Spectrometry for characterization of the changes in the proteomic profile of the *Longissimus dorsi* muscle associated with intramuscular fat deposition in cattle. Furthermore, we compared the muscle proteome with the muscle transcriptome (mRNA and microRNAs), obtained by RNA-sequencing, to better understand the relationship between expression of mRNAs and proteins and to unravel essential biological mechanisms involved in bovine skeletal muscle IMF deposition.