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Letter to the Editor: About bovine β -casofensin genetic variants—A comment on Bruno et al. (2017)

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Bruno et al. (2017) presented an interesting study on the genetic variants of β -casofensin, a bioactive peptide corresponding to bovine β -casein A² f94–123, with promising effects on intestinal health (Plaisancié et al., 2013, 2015). However, we have to underline that A¹ variant differs from A² by only a single amino acid (Pro₆₇ in A² vs. His₆₇ in A¹). This substitution is responsible for the scientific and commercial debate on “A2 milk,” which involves different genetic variants (Caroli et al., 2009).

Thus, no difference exists between the A² and A¹ variants within the β -casofensin sequence. The nomenclature on milk protein variants is precise and updated, based on a wide literature on the subject. Reviews are available on milk protein variant nomenclature, sequences, and effects (e.g., Formaggioni et al., 1999; Farrell et al., 2004; Caroli et al., 2009). Bruno et al. (2017) refer to a substitution Glu₁₁₇ versus Gln₁₁₇ occurring in variants A¹ and G. This substitution was described by Lebrun et al. (1995) in a proteomic study carried out on commercial casein but was not referred to as a genetic variant. Senocq et al. (2002) reported a substitution from Glu to Gln within the f114–169 sequence. This variant, which also differs from A² by 2 residues at positions 72 and 93, was named H² (Farrell et al., 2004).

Within β -casofensin, genetic differences in A³ (residue 106) and B (residue 122) variants were properly accounted for by Bruno et al. (2017). Another interesting variant to be investigated is β -casein I, which differs from A² by a Met₉₃ to Leu₉₃ substitution (Caroli et al., 2009). An intriguing question could be whether the cleavage site that results in β -casofensin could be affected by this exchange.

In conclusion, the genetic polymorphism of bovine β -casein remains an open matter. Further efforts occur to understand and exploit it better without forgetting the existing nomenclature.

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