Letter to the Editor regarding “Lactose does not interfere with the analysis of sialic acids as their 1,2-diamino-4,5-methylenedioxybenzene derivatives”

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Dear Sir,

Recently, Spichtig et al. [1] published in this journal a Technical Note regarding the analysis of sialic acids from infant formulas using 1,2-diamino-4,5-methylenedioxybenzene derivatives, a method previously proposed by us in 2007 [2]. In this Technical Note, Spichtig et al. stated that lactose does not interfere with the analysis, conversely to what we hypothesized in our article. Although in the work reported in their Technical Note they did not include infant formulas or milk, in work published in 2010 [3] they applied the proposed method to several dairy products, including infant formulas. In the most recent work, they used commercial lactose and quantified fetuin sialic acids when this protein was in lactose solution (no concentration reported) and in aqueous solution. They reported an increase of 30 µg/100 mg in the former solution when compared with the latter, which they attributed to a certain amount of sialyllactose present in the commercial lactose because of its dairy origin. This residual sialic acid in lactose was quantified (6.5–24.7 µg/100 mg), and the concentration differed with the supplier and was considered very low by the authors.

Regarding this controversial topic, and in response to the aforementioned article, we would like to clarify our previous report. First, we observed a problem in the accurate quantitation

of sialic acids from infant formulas and proposed a way to effectively resolve this via an additional purification step. We suggested that lactose could be a possible reason for the observed phenomenon. In fact, in a series of recent tests in our laboratory, when commercial lactose (from Sigma) was spiked with different amounts of *N*-acetylneuraminic acid (Neu5Ac) and quantified using the method reported the recovery increased as the amount of Neu5Ac added increased: 5.15 µg was recovered when 5 µg was added, but 19.55 µg was recovered when 15 µg was added. This represents a matrix effect caused by lactose that produces a systematic error proportional to the concentration of Neu5Ac. So, we do not agree with the statement in the abstract of the technical note that lactose does not interfere with the analysis and we strongly recommend the purification step if accurate quantitation of sialic acids in infant formulas is required.

References

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3. Spichtig V, Michaud J, Austin S (2010) Anal Biochem 405:28–40

A response to this ‘Letter to the Editor’ can be found at doi:10.1007/s00216-012-6155-8

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