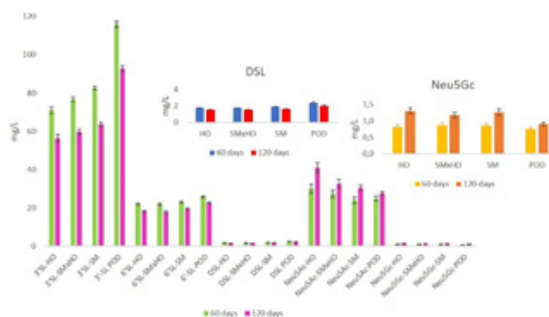


## Glyconutrients with nutraceutical properties in milk of different bovine breeds

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**S**tatement of the Problem: Milk sialyoligosaccharides (SOS) play an important role not only in brain development and increasing immunity in infants, but also in adults for the prebiotic action on the bacterial flora with the improvement of immune defenses and the intestinal microbiota. Sialic acid N-Acetylneuraminic acid (Neu5Ac) and N-Glycolylneuraminic acid (Neu5Gc) play a fundamental role in the protection of proteins from protease activity, cell-cell interactions, in the effector functions of IgG, and also have receptor functions. The MIQUALAT project aimed to improve the health image of bovine milk and to increase its use in nutrition so, the concentration of 3'-sialyllactose (3'-SL), 6'-sialyllactose (6'-SL), disialyllactose (DSL), Neu5Ac and Neu5Gc was analyzed in mature milk of different cow breeds. Methodology & Theoretical Orientation: The study was carried out in 4 breeds: Holstein (HO), Simmental x Holstein (SMxHO), Simmental (SM) reared in the CREA experimental farm and Podolica (POD) reared in Basilicata region. Milk samples of 25 animals for each breed were collected at 60 and 120 days of lactation. Findings: 3'-SL, 6'SL and DSL were higher at 60 than at 120 days and in the POD relative to the other breeds (P <0.001). Furthermore, statistically significant differences were found between breeds of the cross experimental farm. Neu5Ac and Neu5Gc were higher at 120 days (p<0,001) and Pod had a lower Neu5Gc content than the other breeds at 60 and 120 days (p<0,001). Conclusion & Significance: Results showed a significant effect of the breed on the SOS and sialic acids content which is more evident in autochthonous breeds. Genomic ongoing analyses will help the dairy industry to apply "precision breeding" scheme to handle "natural" milk with benefit on human health. Acknowledgement: this research was funded by MIPAAF in the national research project MIQUALAT (D.M. 16844/7100/2019).



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## **Biography**

Since March 2008 she holds a permanent senior researcher position at CREA. In 1992 she graduated in Biological Sciences (with honour); in 2005 she received the Ph.D. in Biochemistry and Applied Chemistry and in 2009 the Master in Bioinformatics. The activity of Dr. Crisà mainly concerns the application of molecular biology, genetic, genomic, transcriptomic, bioinformatics methods for the study of lactation, resistance to disease, productive and reproductive traits, and products quality in some domestic animals' species (cattle, buffalo, sheep, goat). She has been a project evaluator for the European Community and MIUR. She collaborates with national and international research projects on livestock species and coordinates the CREA-Monterotondo group as for the scientific activities on goat species within the Italian Goat Consortium, International Goat genome Consortium and the international ADAPTmap project. She is a peer reviewer for international journals. Email: [alessandra.crisa@crea.g](mailto:alessandra.crisa@crea.g)