# O-Glycosylation Changes in Serum Immunoglobulin G Are Associated with Inflammation Development in Advanced Endometriosis

[Katarzyna Sołkiewicz](https://pubmed.ncbi.nlm.nih.gov/?term=So%C5%82kiewicz+K&cauthor_id=35897676), [Monika Kacperczyk](https://pubmed.ncbi.nlm.nih.gov/?term=Kacperczyk+M&cauthor_id=35897676), [Hubert Krotkiewski](https://pubmed.ncbi.nlm.nih.gov/?term=Krotkiewski+H&cauthor_id=35897676), [Marcin Jędryka](https://pubmed.ncbi.nlm.nih.gov/?term=J%C4%99dryka+M&cauthor_id=35897676), [Ewa Maria Kratz](https://pubmed.ncbi.nlm.nih.gov/?term=Kratz+EM&cauthor_id=35897676)

Int J Mol Sci. 2022 Jul 22;23(15):8087. doi: 10.3390/ijms23158087.

## Abstract

Endometriosis is a gynecological disease, the pathogenesis of which seems to be directly related to inflammatory processes with an immune basis. Our study aimed to analyze the O-glycosylation of native serum IgG and IgG isolated from sera of women with advanced endometriosis, without endometriosis but with benign gynecological diseases, and from a control group of healthy women, in the context of its utility for differentiation of advanced endometriosis from the other two groups of women studied. For the analysis of serum IgG O-glycosylation and the expression of multi-antennary N-glycans, lectin-ELISA with lectins specific to O-glycans (MPL, VVL, and Jacalin) and highly branched N-glycans (PHA-L) was used. The relative reactivities of isolated serum IgG O-linked glycans with specific lectins as well as the MPL/VVL O-glycosylation ratio were significantly higher in patients with advanced endometriosis and those with other gynecological diseases when compared to the control group of healthy women. We also showed significantly higher expression of PHA-L-reactive multi-antennary N-glycans in isolated IgG in the advanced endometriosis and the non-endometriosis groups in comparison to the control group. Additionally, significantly higher expression of Jacalin-reactive O-glycans in isolated IgG was observed in the non-endometriosis than in the advanced endometriosis group. The results of the ROC curve and cluster analysis additionally confirmed that the lectin-based analysis of isolated serum IgG O-glycosylation and the expression of highly branched N-glycans may help distinguish women with advanced endometriosis from healthy women. Moreover, the analysis of the expression of Jacalin-reactive i-IgG O-glycans may be helpful in differentiation between women with advanced endometriosis and patients with other gynecological diseases with an inflammatory background. In the case of non-endometriosis patients, the observed differences were most probably caused by increased expression of core 3 type O-glycans.

**Keywords:**O-glycosylation of serum IgG; advanced endometriosis; inflammation; lectin-ELISA; multi-antennary N-glycans in IgG.