# Human Milk Immune Complexes Isolated Following Pregnancies Complicated by COVID-19 Infection Contain SARS-CoV-2 Nsp13 Helicase and Biologically Active Factors

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Human milk satisfies a baby’s every need. By providing essential nutrients and biologically active factors, milk promotes the infant’s growth and development. Milk also safeguards the infant by promoting healthy gut flora and providing inflammatory modulators to supplement their immature immune system. Mammary gland lobules select blood proteins to enrich the cytoplasmic fragments they release as an apocrine secretion, milk. In this study, an immunoaffinity peptide mass spectrometry approach was used to isolate human milk immune complexes in samples from COVID-19+ and healthy control mothers. Seventy human proteins were sequenced, including L-xylulose reductase, a novel discovery in human milk. Pathway analysis highlighted an adjuvant function for the immune complex (IC) proteins. The ICs recovered from milk following pregnancies complicated by COVID-19 infection contained the SARS-CoV-2 Nsp13 helicase. Together, milk immune complexes contain both adjuvant and antigen, suggesting that milk has yet another function: vaccination.

**Awards Won:**

Second Award of $2,000

American Chemical Society: First Award of $4,000