Myeloid and tissue macrophage response (Neutrophil response) occurs in response to infective agents. Haematopoietic cytokines, such as G-CSF, initiate neutrophil recruitment along with T cells (γδ and natural killer cells). Il-17A and IL-23 play a role in neutrophil recruitment. Constitutive epithelial cell lactoferrin and lactoferrin mRNA expression in the vaginal lumen, stratum basale, and lamina propria are involved in extracellular iron (Fe^3+). Transudation of neutrophil lactoferrin and iron-binding molecules like transferrin and ferritin contribute to feedback mechanisms involving lactoferrin mRNA expression and hepatic hepcidin response. Oestrogen and body mass index (BMI) influence iron metabolism. Hepatic hepcidin response and endogenous hepcidin mRNA expression are regulated by feedback mechanisms involving ferritin and defensins. Vascular supply and leptin also play a role in this complex system.
Schematic outline of potential pathways influencing vaginal mucosal iron homeostasis and lactoferrin production following genital infection

Infective organisms attach to superficial epithelial cells; replication and inflammatory signal induction; systemic inflammatory response and increased Lf production from tissue neutrophils (Masson et al); increase in liver hepcidin expression in response to inflammation, with possible contribution from endogenous neutrophil hepcidin (Peyssonnaux et al, 2006); with infection, hepcidin blocks ferroportin and macrophage iron release into tissues (Ganz), influencing saturation of neutrophil apolactoferrin and amount of transudated free iron (Tang, 2007); association of leptin from epithelial cells with BMI and adipose tissue induces IL23 (Madan et al, 2014), neutrophil recruitment and Lf expression.


