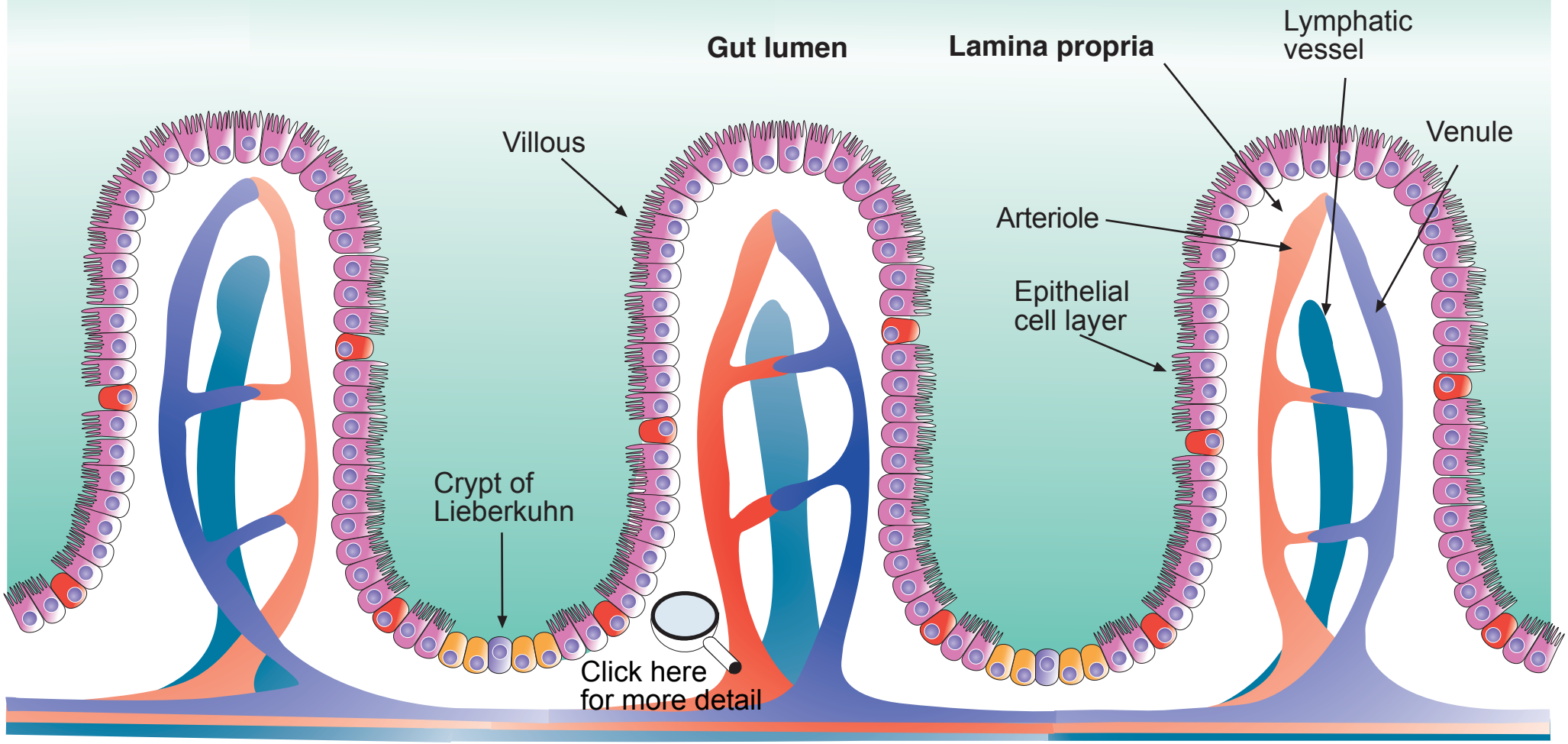
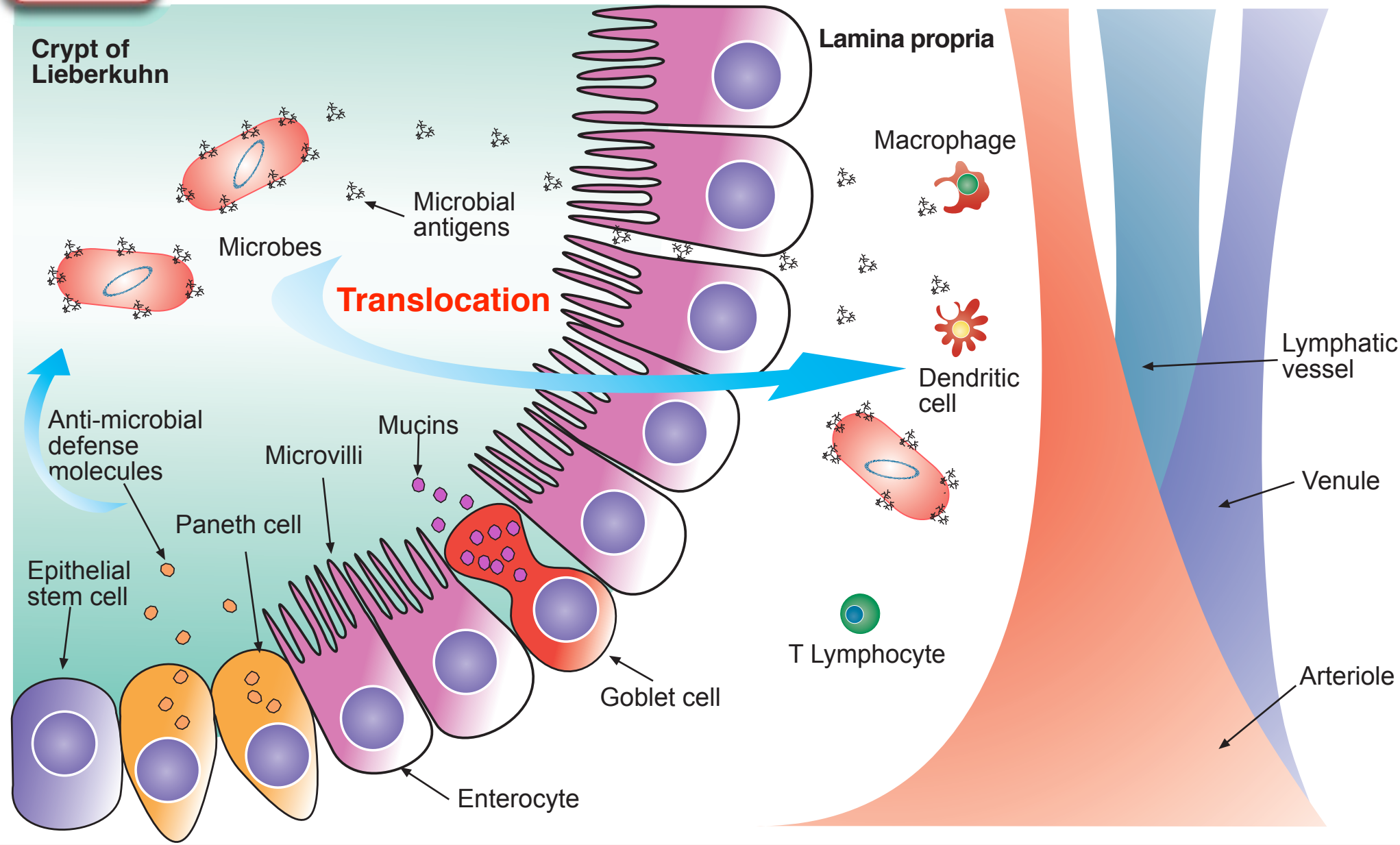
HIV Infected Mucosa

NEXT

Reduced villous height



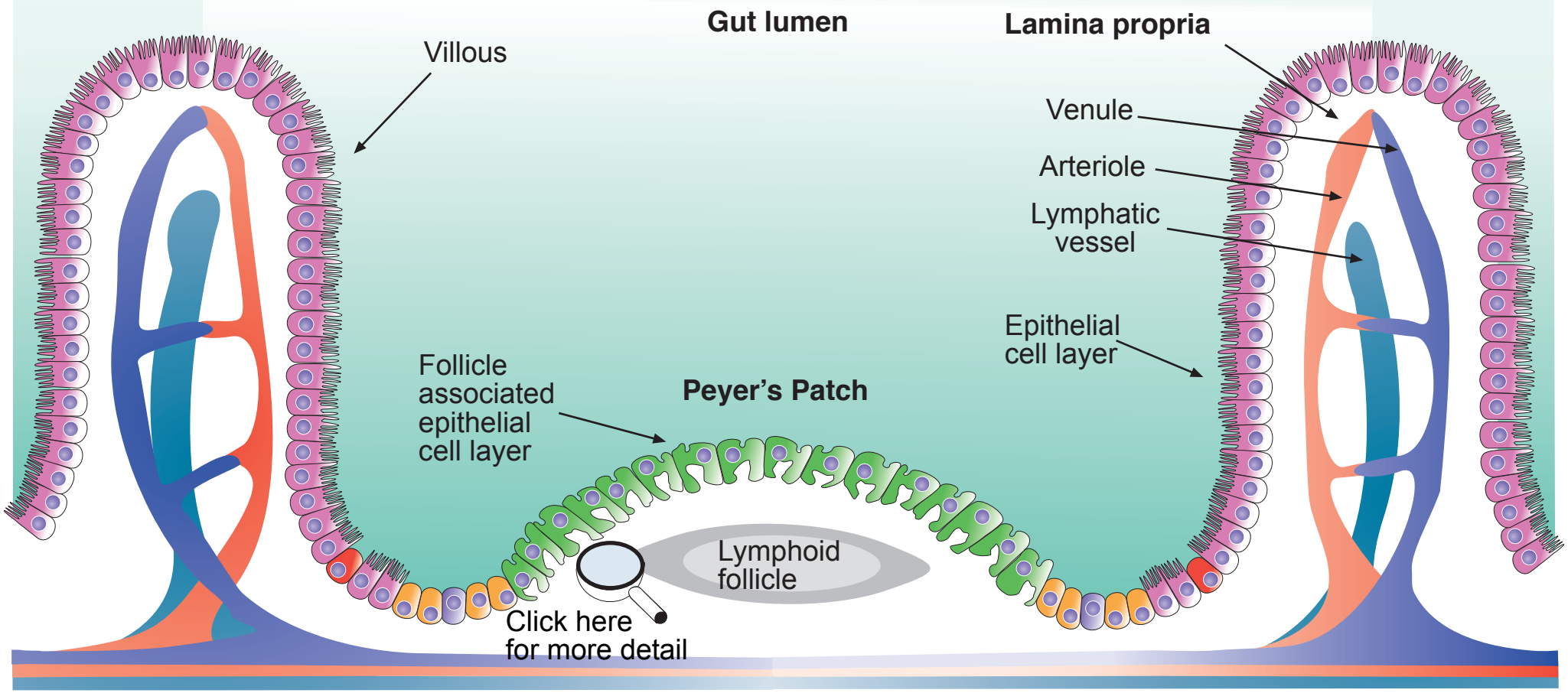
HIV infection and outgrowth of opportunistic organisms in the gut can lead to malabsorption of nutrients due to a disruption in the normal development of intestinal villi.The absorptive surface area is reduced due to villous atrophy, thought to be a consequence of mucosal immune activation caused by HIV replication in lamina propria CD4+ T lymphocytes. Pro-inflammatory cytokines affect the growth of the epithelial cell layer and there is an increase in gut permeability to microbial organisms and antigens that can further stimulate the immune system and enhance HIV replication.



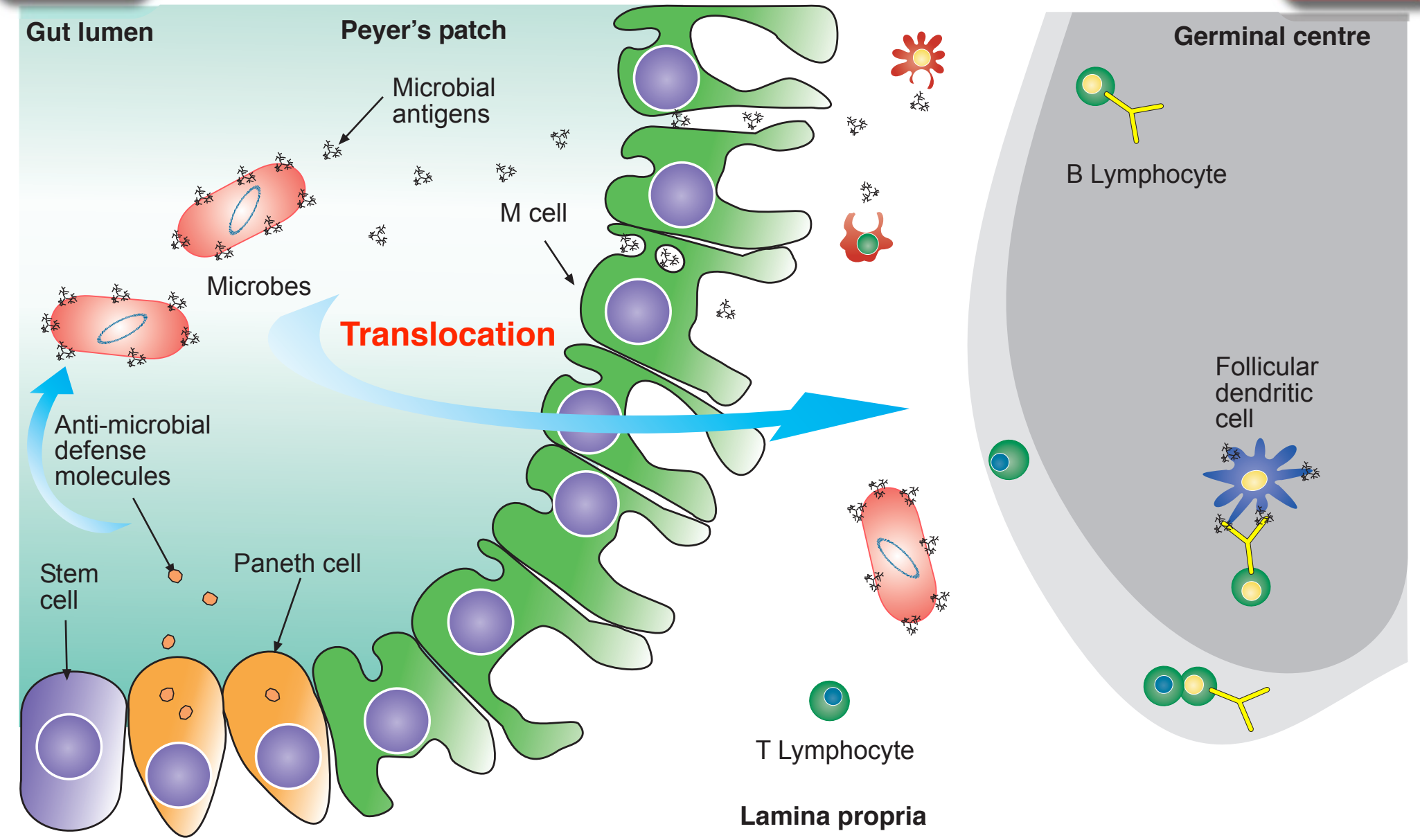
Activation of the mucosal immune system due to HIV replication in CD4+ T helper lymphocytes in the lamina propria leads to a the production of pro-infllammatory cytokines. This can cause a disruption of gut epithelial cell development, most notably leading to villous atrophy and an increase in gut permeability to microbes and microbial antigens. The consequences of this are malabsorption of nutrients due to reduced absorptive surface area and further stimulation of mucosal immune cells that can enhance HIV replication.

PREVIOUS

Reduced cell proliferation in Peyer's Patches



Antigen-presentation in Peyer's Patches is greatly reduced in HIV infection. This is due to a failure in maintaining the homeostasis of immune cells in the lymphoid follicles and the structure and function of the tissue. Depletion of CD4+ T helper cells in the lamina propria reduces the recruitment of new T and B lymphocytes into the lymphoid tissue. In the absence of immune cell proliferation in the lymphoid follicle the physical size of the Peyer's Patches are reduced giving the gut a smooth appearance.



Depletion of CD4+ T helper cells in the lamina propria due to HIV infection affects the normal homeostasis of T and B lymphocytes in the lymphoid tissue of the Peyer's Patches. In the absence of immune cell proliferation in the lymphoid follicle the size of the Peyer's Patches are reduced giving the gut a smooth appearance. Translocation of microbes and microbial antigens occurs due to the production of pro-inflammatory cytokines. This results in an increased gut permeability which leads to further activation of mucosal immune cells that promotes HIV replication.