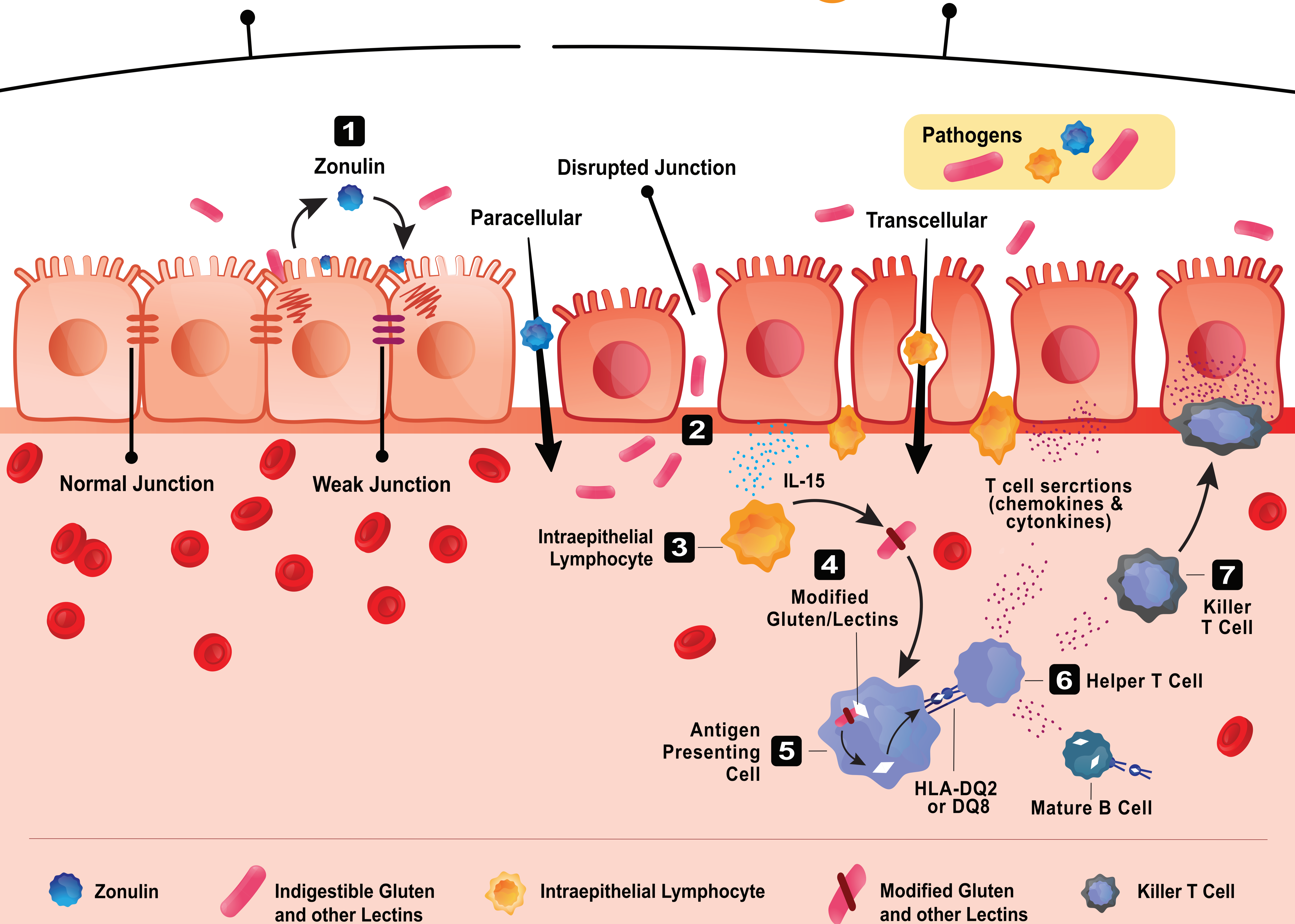


## ✓ NORMAL GUT

## ✗ LEAKY GUT



- 1** Indigestible gluten and other lectins induce enterocytes to release the protein zonulin, which loosens tight junctions.
- 2** Gluten and other lectins fragments cross the intestinal lining in abundance and accumulate under epithelial cells (enterocytes).
- 3** Gluten and other lectins induce enterocytes to secrete interleukin-15 (IL-15), which arouses immune cells called intraepithelial lymphocytes (IEL) against enterocytes.

- 4** Tissue transglutaminase (TTG), an enzyme released by damaged cells, modifies the gluten or other lectins .
- 5** Antigen-presenting cells (APC) of the immune system joins the modified gluten to HLA molecules and display the resulting complexes to other immune cells: helper T lymphocytes.
- 6** Helper T cells that recognize the complexes secrete molecules that attract other immune cells and can directly damage enterocytes. Helper T cells spur Killer T cells to directly attack enterocytes.
- 7** Helper T cells spur Killer T cells to directly attack enterocytes.