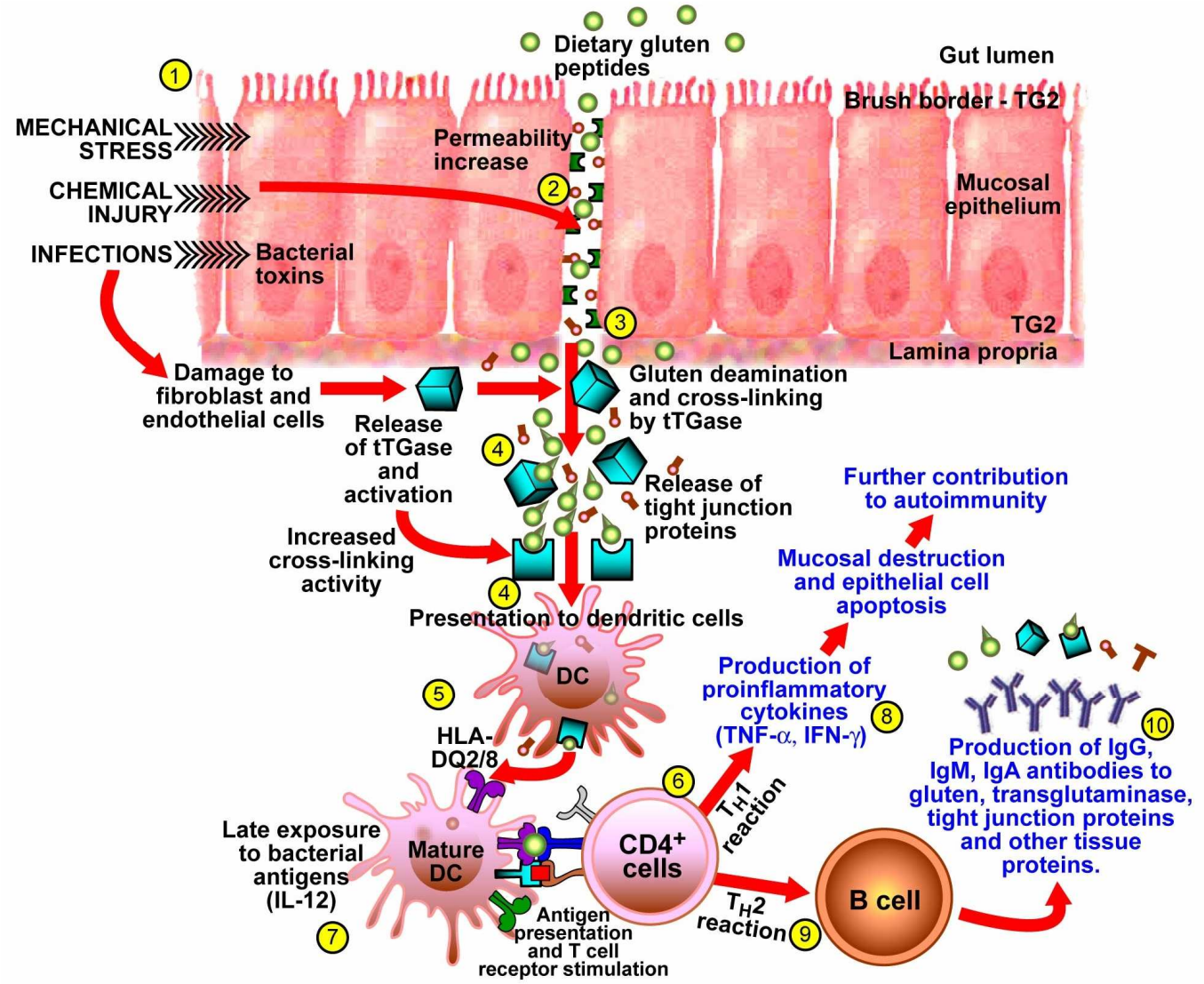

Depiction of the intestinal mucosa with emphasis on the factors involved in the development of celiac disease in individuals with HLA DQ2/DQ8-positive.

Infection, mechanical and chemical stress (1) can impair mucosal integrity (2).

The parts of gluten that are resistant to brush-border enzymes will survive digestion and can be transported across the epithelial barrier as polypeptides (3).

Tissue transglutaminase in the intestinal mucosa (lamina propria) become activated and deamidate gluten peptides. Some of the deamidated gliadins may cross-link to transglutaminase and form complexes of gliadin with TG (4).

Deamidated gliadin peptide by itself, deamidated gliadin peptide cross-linked to TG, and released tight junction proteins are presented by dendritic cells or antigen-presenting cells as well as B cells (5) which carry HLA-DQ2 or DQ8 molecules to the CD4+ T cells in the lamina propria (6).

It is believed that this antigenic presentation is enhanced in an individual with later-in-life exposure to bacterial antigens whose mature dendritic cells produce significant amounts of interleukin-12 [IL-12] (7).

This antigenic presentation results in driving the CD4+ cell response either towards TH1 reaction, production of inflammatory cytokines (8), mucosal cell destruction and autoimmunity, or, toward TH2 response B-cell activation (9), and antibody production against deamidated gluten, transglutaminase, gliadin cross-linked to transglutaminase, and different tissue antigens T (10).

