Table 1.) A summary of the role of CYP450 isoforms in maintenance of epithelial barrier integrity.

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| CYP450 isoform | Type of study | The role in epithelial barrier integrity | References |
| CYP1A | in vivo: human | The expression of intestinal CYP1A1 is significantly increased in CD patients. | Klotz et al. [27],  Plewka et al. [28] |
| CYP2A6 | in vivo: rat | Simultaneous inhibition of CYP2A6 and CYP3A4 prevents AFB1-induced duodenal hyperpermeability. | Wang et al. [38] |
| CYP2E1 | 1. in vitro: T84 cells, in vivo: mouse and rat  2. in vivo: human | 1. The activity of CYP2E1 plays a pivotal role in the development of LGS caused by alcohol and fructose.  2. The expression of intestinal CYP2E1 is altered during IBD. | 1. Abdelmegeed et al. [49], Cho et al. [51]  2. Ding et al. [46], Plewka et al. [28] |
| CYP2J2 | in vitro: HUVECs and HRCECs,  in vivo: mouse and rat | Overexpressed CYP2J2 attenuated the hyperpermeability of BRB. | Zhao et al. [56] |
| CYP3A | 1. in vivo: human,  2. in vivo: rat | 1. CYP3A is significantly less expressed in celiac disease.  2. Decreased expression of hepatic CYP3A4 accompanied by increased intestinal permeability was observed after gemcitabine administration. | 1. Lang et al [63], Chretien et al. [67]  2. Xu et al. [68] |
| CYP8B1 | in vivo: mouse | The overactivity of hepatic CYP8B1 leads to the intestinal wall impairment. | Chen et al. [71] |
| CYP26 | in vitro: MDCK cells  in vivo: mouse | CYP26B1-dependent catabolism of atRA promotes increased permeability in cellular monolayers and inflamed intestinal tissue. | Osanai et al. [90] |
| CYP27B1 | In vivo: mouse | Intravenous infusion of the cells overexpressing CYP27B1 alleviated inflammation and prevented intestinal wall damage in DSS-induced colitis. | Li et al. [94] |

CD - Crohn’s disease

AFB1 - aflatoxin B1

T84 - human colon cancer cell line

LGS – leaky gut syndrome

IBD - inflammatory bowel diseases

HUVECs - human umbilical vein endothelial cells

HRCECs - human retinal capillary endothelial cells

BRB - blood-retinal barrier

MDCK - Madin-Darby canine kidney (cells)

atRA - all-trans retinoic acid

DSS – dextran sulfate sodium