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Dear Editorial Board of *World Journal of Dermatology*,

Thank you for the review of our submission (Manuscript NO: 33906), entitled "*The Relationship Between Intestinal Bacteria and Skin Health*". We have responded to each of the reviews in a point-by-point fashion and include our responses below.

Reviewer: 1

- 1. A good review on an interesting topic, although the "Immune system modulation" paragraph could be further developed, based on recent literature, such as the Zanvit P, et al manuscript (Antibiotics in neonatal life increase murine susceptibility to experimental psoriasis. *Nat Commun.* 2015 Sep 29;6:8424)**

Response: Thank you, we have discussed this suggested study by Zanvit P, et al to expand the "Immune System Modulation" section.

Reviewer: 2

"The Skin-Gut Axis: The Relationship between Intestinal Bacteria and Skin Health" summarized the human intestinal microbiome, the beneficial effects of probiotics/prebiotics, the link between skin disease and the gut, as well as proposed mechanisms regulating the skin-gut axis.

- 1. Probiotics are thought to provide therapeutic benefits via multiple mechanisms. The authors mention: (1) preventing pathogenic bacteria from colonization; (2) improving barrier function; (3) modulating the immune system; (3) synthesizing metabolites. Authors may need to add (4) modulating central nervous system and enteric nervous system, for example, in Parkinson's disease, multiple sclerosis, intestinal motility, etc. they can cite which aspects have been studied; literatures need to be cited.**

Response: We have added additional evidence regarding the role of probiotic supplementation for central nervous system function, including in multiple sclerosis and Alzheimer's disease.

- 2. Certain skin diseases have been studied that are related to the gut microbiota. Besides psoriasis and rosacea, atopic dermatitis may also need to be added. Please reference a recent article Lindberg M and Soderquist B. Atopic dermatitis and gut microbiota. *Br J Dermatol.* 2017 Feb;176(2):297-298. In addition, diseases of primary immune deficiency such as Foxp3-deficiency or dysfunction could cause Immune dysregulation, polyendocrinopathy, enteropathy, X-linked (IPEX) syndrome or IPEX-like syndrome have clinical manifestation of severe dermatitis and multi-organ inflammation, which demonstrate the gut dysbiosis. ref. He B, et al. Resetting microbiota by *Lactobacillus reuteri* inhibits Treg deficiency-induced autoimmunity via adenosine A2A receptors. *J Exp Med* 2017 214 (1): 107-123. 3. The western diet has been strongly associated with acne, as authors have stated. They may need to further describe the relationship between western diet and gut microbiota.**

Response: We had added a section about the role of the microbiome in atopic dermatitis, citing Lindberg and Soderquist as suggested. In the “Immune System Modulation” section we have cited He B, et al. and added information about the role of the intestinal microbiome in the differentiation and expansion of T cells and its potential role in primary immune system deficiencies and resultant dermatitis. Lastly, we have expanded the “Diet” section to explain the associations of the “western diet” with gut dysbiosis.

In summary, thank you for the opportunity to revise our manuscript and we hope that it is now acceptable for publication.

Kind regards,

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