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EDITORIAL

WILEY

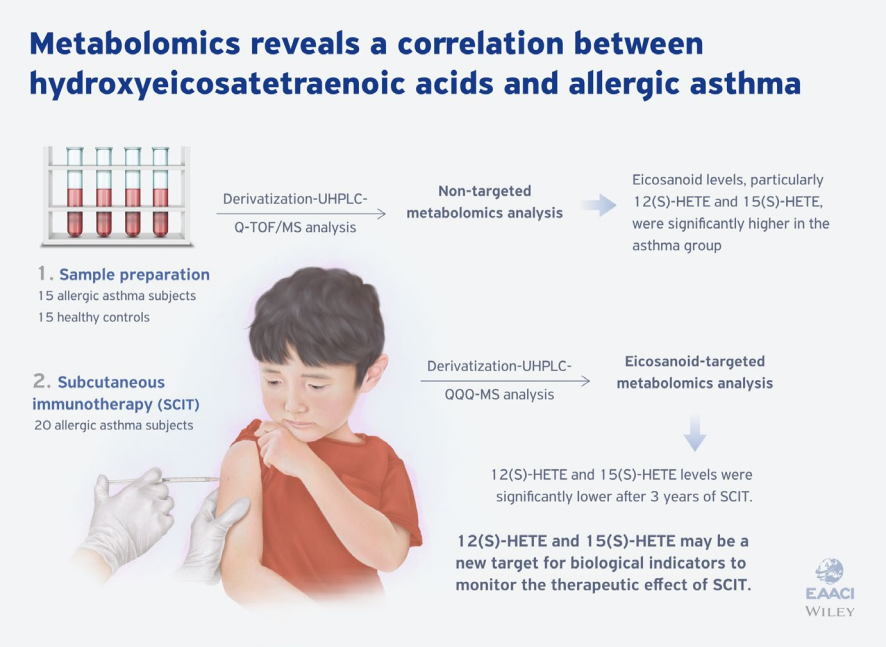
Comments on metabolomics in asthma and atopic dermatitis, and patient care during the COVID-19 pandemic

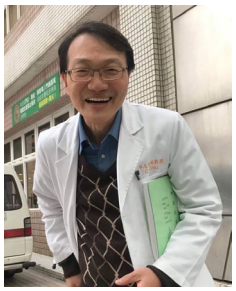
Primary immunodeficiency may be suspected when a decreased production of immunoglobulin is detected early in life. In the first article of this issue, Amirifar et al.[1] present an extensive review of the molecules known to be or possibly involved in the etiology of antibody deficiencies. The second review of this issue also addresses early-life immune events. Indeed, the neonatal immune response is very specific to this age and will largely influence the development of the immune system. Holm et al.[2] discuss here our current understanding of the immune system of neonates with a specific focus on immunometabolism. These two reviews may foster new insights into possible treatments of altered immune functions, with a specific focus on this age group.

Zheng Peiyan

The two initial editor's choices of this issue address metabolomics in asthma and in eczema. Metabolomics can be defined as a method "providing promising opportunities for comprehensive analysis of endogenous metabolites in biological samples".[3] The first study by Zheng Peiyan et al.[4] aimed at identifying potential biomarkers for allergic asthma, and monitoring subcutaneous immunotherapy (SCIT). They initially performed untargeted metabolomics in 15 asthmatic and 15 healthy children. In a second step, targeted metabolomics was performed on eicosanoid profiles on the sera of patients who received SCIT. In the first set of experiments, various levels of increased eicosanoids were identified specifically in the asthmatic patients. In the second set of experiments, these metabolites were found to be increased in the first year of SCIT, but with a decrease toward the end of the treatment. The authors concluded that 12(S)- and 15(S)-HETEs are potential biomarkers not only for the pathogenesis but also for the follow-up of SCIT in asthmatic children.

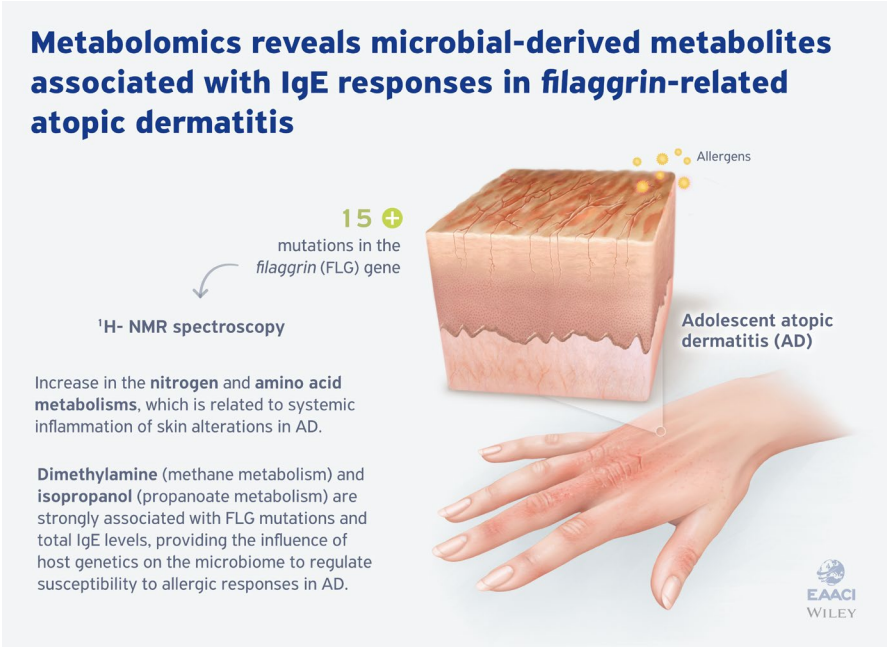
Further studies addressing metabolomics in asthma have been recently published in PAI, notably with the characterization of metabolites not only in exhaled breath condensates[3] but also in correlation with viral infections.[5,6] It is of note that other microorganisms such as those present in the gut microbiota do also secrete metabolites potentially influencing asthma.[7] Overall, the identification of new markers measured either prenatally or during the course of the disease will help to better understand the pathogenesis of asthma.[8,9]





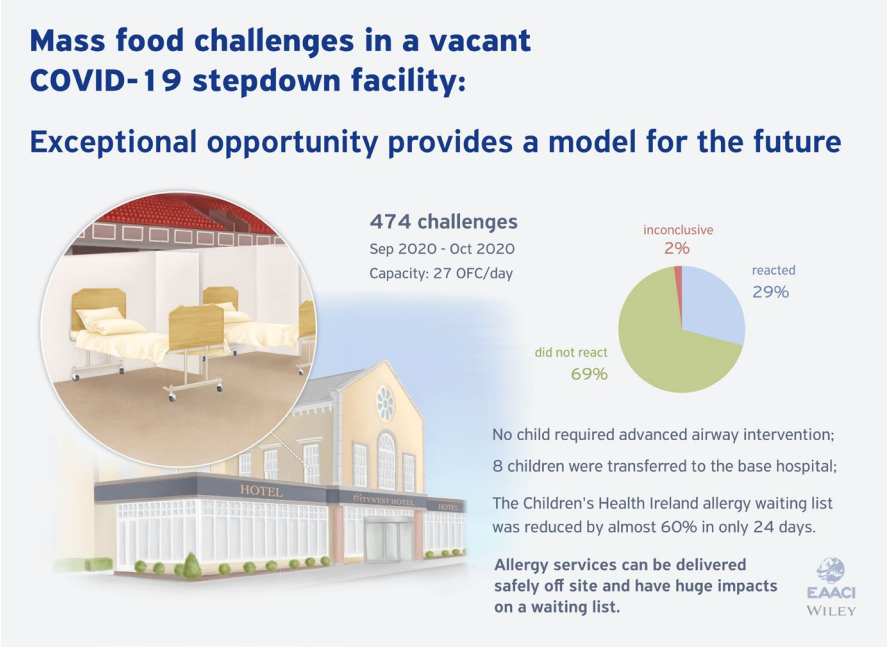
Chiu Chih-Yung

The second editor's choice of this issue addresses the influence of microorganism-derived metabolites on allergy and more specifically on the various phenotypes of atopic dermatitis. Chiu Chih-Yung et al.[10] recruited children and adolescents with atopic dermatitis as well as healthy controls with the aim to investigate the metabolic impact on filaggrin mutations and IgE responses in atopic dermatitis. They sequenced the filaggrin gene and measured plasma metabolites by magnetic resonance spectroscopy, and found that nitrogen and amino acid metabolism for energy production were associated with atopic dermatitis, as well as with microbe-related methane and propranoate metabolism. Further, they found an association of various metabolites with specific filaggrin mutations, also positively correlating with total IgE serum levels. They conclude by suggesting that a diverse microbial community structure related to hosting genetics is contributing to environmental allergic responses in the pathogenesis of atopic dermatitis.



Aideen Byrne

The third editor's choice article is directly related to patient care during the COVID-19 pandemic. The pandemic definitely has severely changed the care of our allergy patients. First, we had to determine whether allergy treatments were not augmenting the risk of getting infected or of having a more severe case of COVID-19. Patients and the medical community could then be reassured that allergy medications could be prescribed and used without harm.[11] Furthermore, lockdowns in many countries prevented allergy patients getting regular care at medical offices or in clinics, making common the use of alternative methods such as telemedicine.[12,13] In this regard, assuring continuous availability of food challenges represented a major challenge as the waiting list is already long in many clinical settings. To overcome this problem during the pandemic, Byrne and colleagues used a COVID-19 medical facility equipped with hospital beds and monitors.[14] They brought onsite allergy consultants and anesthetic cover and did set up operational facilities with the capacity of 27 oral food challenge per day. In this facility, almost 500 food challenges were completed with approximately one-third positive food challenge, with 1 out of 20 causing anaphylaxis. Thanks to this setting, they could reduce the waiting list by two-thirds in only 3 weeks of time. The authors concluded that the unusual situation provoked by the pandemic allowed the development of new procedures to reduce the waiting list of food challenges, showing that a flexible model of service delivery may also help to solve practical scheduling problems outside of the pandemic setting. State-of-the-art clinical care for food challenges according to current standards was provided throughout the service.[15–17]



This issue closes the publications for PAI in 2021. Starting in January 2022, PAI will be published monthly, and accepted publications will be directly assigned to the next issue. In that way, authors will benefit from a quick assignment of their articles into an issue and will get rapidly the final reference for their articles. Obviously, articles will continue to be published online within a few days after acceptance.

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