

## Patient voice

# Biomarker development in asthma from a patient's perspective

I was finally diagnosed in 1981 with asthma after having had lung problems since childhood. My asthma diagnosis involved a hospital admission to do a lot of tests. At that time, I had no idea what it was all about. I thought that a hospital admission was normal for diagnosing asthma. I underwent allergy tests, bronchoscopy, contrast fluid chest radiography and a lot of blood and sputum tests... and many more. But what exactly they were looking for and what it meant, I had no idea.

When I was first diagnosed I was told that the medication available was able to control most asthma patients well. I never experienced this myself. It felt very frustrating to hear that all asthma could be controlled by medication, but never be stable myself. As my instability did not lead to hospital admissions, I seemed to fly under the radar of being taken seriously in having unstable, difficult-to-treat asthma.

My asthma tends to remain unstable and to worsen continuously. On average, a new medication works for about 5 years, becoming increasingly less effective and requiring ever higher doses and add-on medication. This gets very frustrating. It is a continuous struggle between my breathlessness and what is tested in the hospital when visiting my clinician. The burden of my asthma is higher than can be diagnosed with the current tests. This makes finding the right medication and support a struggle.

Since becoming a patient advocate (and being a curious person) I have found out a lot more about my own asthma and asthma in general. My first introduction to biomarkers was when I became a

member of the Patient Input Platform of U-BIOPRED (Unbiased Biomarkers in Prediction of respiratory disease outcomes). U-BIOPRED wanted to look at lung diseases in a different way. At that time, I had no idea what biomarkers were.

We started talking about asthma as a heterogeneous disease. Not one disease and the same in all patients, but a disease that can be very different in different patients or that can change over time. This felt totally unlike hearing that everybody's asthma should be become stable with the medication available.

There were various phenotypes of asthma but no clear way of identifying the distinct groups. Let alone what to do once the distinction could be made. Now, biomarkers show that there are underlying biological mechanisms that trigger the asthma response. With different biomarkers, different types of asthma can be identified and can hopefully be treated with diverse medications. But what are these biomarkers?

Allergy biomarkers look for reactions to certain things. Not all asthma patients have allergies, so we can already identify two groups: allergic and nonallergic asthma. In my case, I wish it was that simple. A long time ago I tested positive for a lot of allergies; however, no IgE or IgG can be detected in my blood anymore. My allergic reactions have not decreased, and I react to an ever-increasing number of substances. So now I am no longer allergic but hyperresponsive, and take the same medication as before, only more of it. My body also reacts to air quality, which is also not classified under allergy,

**Cite as:** Hamerlijnck D. Biomarker development in asthma from a patient's perspective. *Breathe* 2019; 15: 277-278.

 @ERSpublications

**A patient discusses asthma biomarkers in relation to her experience of living with asthma, and her work as a patient advocate for @EuropeanLung** <http://bit.ly/2IQPVtU>



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**Figure 1** Dominique with the various medications that she has been prescribed to manage her asthma.



**Figure 2** Dominique presenting at a research seminar on severe asthma at a European Respiratory Society satellite event in London, UK, 2018.

even though the physical reaction is very similar and has a very high burden on my daily life.

I am also aware of biomarkers used to distinguish between asthma endotypes. Biomarkers found in, for example, blood, sputum, urine and exhaled breath. These biomarkers not only help identify the type of asthma you might have but also predict how you react to medications.

New drugs have been developed for asthma, related to specific biomarkers. One of the big distinctions in asthma based on biomarkers is whether or not you have type 2 inflammation (eosinophilic) asthma. A lot of attention is given to type 2 inflammation asthma, as different types of medication have now become available. This is

fantastic: finally there is something to help more asthma patients achieve a better quality of life and a more predictable life.

But what if you don't have this type of asthma? What if the diagnostic options can't yet identify what triggers your asthma attacks, what type of asthma you have? What if your asthma does not remain stable on your current medication? Not much more is available in terms of treatment options. We can only hope that more ways of identifying the different types of asthma will be developed and that new treatments for these types of asthma will follow. A lot of asthma patients, myself included, are anxiously awaiting new and better treatment to control their asthma and to improve their quality of life.

Dominique Hamerlijck is a member of the Dutch Lung Foundation patient experience group (LED-group), which is a member of the European Lung Foundation (ELF)'s Patient Advisory Committee. Dominique Hamerlijck is also involved in different ELF-led patient advisory groups in European Respiratory Society (ERS) projects.

ELF was founded by the ERS, with the aim of bringing together patients, the public and respiratory professionals to positively influence respiratory medicine. ELF is dedicated to lung health throughout Europe and draws together the leading European medical experts to provide patient information and raise public awareness about lung disease.

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