

# Severe asthma and the role of eosinophils



inflammation  
tight chest  
airways  
Asthma  
coughing  
wheezing  
shortness of breath  
lungs control  
hospital  
chronic lung disease  
attack  
severe cough

**NEARLY 242 MILLION** PEOPLE WORLDWIDE HAVE ASTHMA.<sup>1</sup>

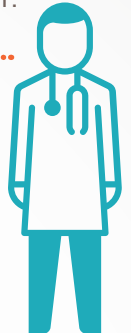


**UP TO 10% MAY HAVE SEVERE ASTHMA.**<sup>2</sup>



People with severe asthma are at **high risk** of an asthma attack or 'exacerbation'.<sup>3</sup>

**NEARLY 40% ARE HOSPITALISED AT LEAST ONCE A YEAR FOR THE TREATMENT OF AN EXACERBATION.**<sup>4</sup>



ASTHMA COSTS AN ESTIMATED **€19 BILLION** A YEAR ACROSS EUROPE.<sup>5</sup>



Direct and indirect costs are up to **3 or 4 times higher for severe asthma patients** compared to mild asthma patients.<sup>6,7</sup>



**1 in 7** asthma patients have missed at least one day of work in a two-week period.<sup>8</sup>



## Role of Eosinophils

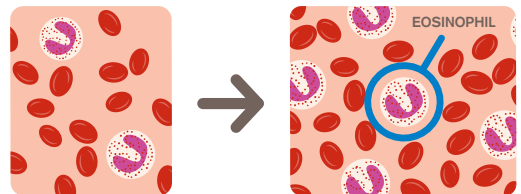
**Not all asthma is the same:** Severe asthma can have a number of underlying causes, including **eosinophilic inflammation**.<sup>9</sup>

**Studies suggest approximately 60%** of severe asthma patients may have eosinophilic airway inflammation.<sup>10</sup>



**Eosinophils are a type of white blood cell.**

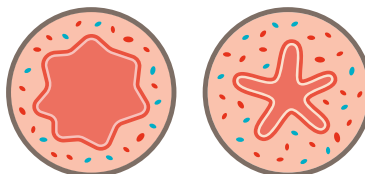
They are believed to play a role in protecting the body by increasing in number to defend the body against parasites and also accumulate wherever allergic reactions take place.<sup>11,12</sup>



Blood smear showing increasing eosinophil levels

**Eosinophils play a role in the development of asthma.**

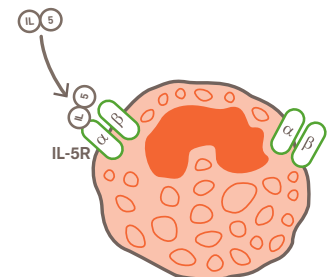
In people with asthma, inflammatory mediators released from the eosinophil cause inflammation in the lungs, making it difficult to breathe and increasing the risk of an exacerbation.<sup>13</sup>



Normal airways

Inflamed airways with airway narrowing

Eosinophils are primarily regulated by the signalling protein **Interleukin-5 (IL-5)**, which binds to its receptor on the surface of eosinophils.<sup>14</sup>



Single eosinophil cell showing IL-5 binding to a receptor on its surface

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