Synopsis: It is well known that asthma is a very heterogeneous disease. Our understanding has evolved significantly, and we now know that asthma can be subdivided into groups of patients or phenotypes who exhibit particular clinical characteristics as well as cellular inflammatory patterns in sputum, blood, and airway tissue compartments. These phenotypes are driven by endotypes which are the mechanisms underlying the phenotypes. This stratification has led to development of therapies that target specific molecular pathways of the disease relevant to specific phenotypes of asthma. Currently, two major stratifications in asthma define the immunology: type 2 asthma, where the inflammatory process is dominated by the cytokines IL-4, 5 and 13 and includes subphenotypes such as early-onset allergic asthma, with and without obesity, aspirin sensitive asthma and late-onset eosinophilic asthma. The second stratification is non-type 2, driven by multiple other mechanisms such as obesity-induced asthma, paucigranulocytic asthma, neutrophilic asthma, and asthma associated with smoking, pollution, infection, or other respiratory irritants. This discussion will review the current state of the art regarding specific targeted molecular therapies that are approved and under development and how they impact the outcomes of patients who manifest specific phenotypes of asthma.