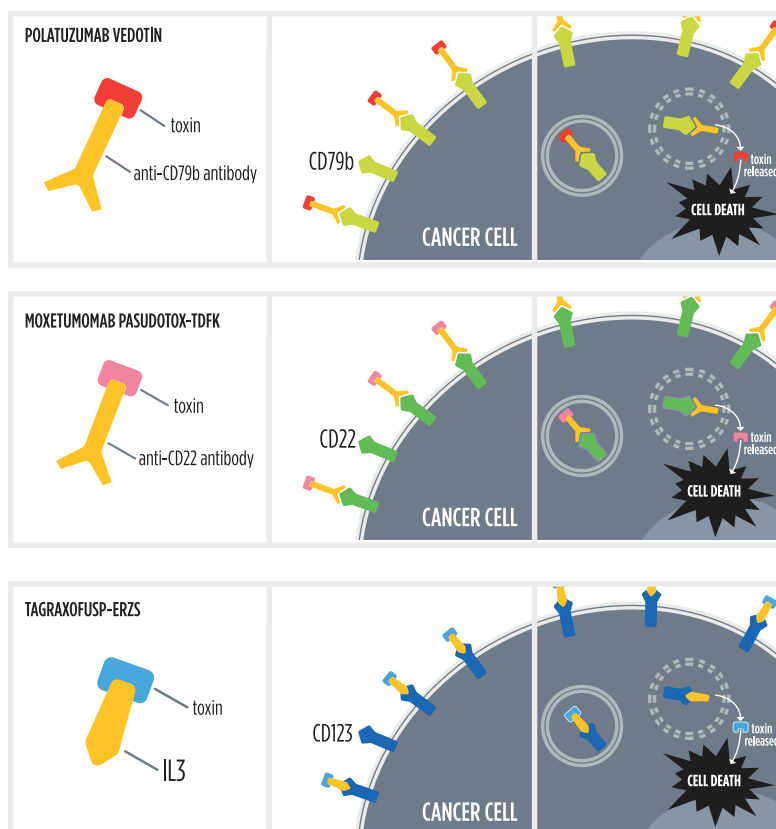


**FIGURE 13**

## DELIVERING CYTOTOXIC AGENTS PRECISELY TO CANCER CELLS



Three molecularly targeted therapeutics approved by the U.S. Food and Drug Administration (FDA) during the 12 months covered by this report, August 1, 2018 to July 31, 2019, target molecules on the outer surface of cancer cells. Polatuzumab vedotin-piiq (Polivy) is an antibody-drug conjugate that consists of the cytotoxic chemotherapeutic monomethyl auristatin E attached to an antibody that targets the CD79b protein found on the outer surface of cancerous B cells. Once the antibody attaches to CD79b, the antibody-drug conjugate is internalized by the cell. This

leads to the cytotoxic chemotherapeutic being released from the antibody. Once free, it is toxic to the cancer cells, which ultimately die. Moxetumomab pasudotox-tdfk (Lumoxiti) and tagraxofusp-erzs (Elzonris) are cancer cell-targeted cytotoxins that comprise a bacterial toxin connected to specific molecules that attach to specific proteins on the outer surface of cancer cells. These therapeutics work in a similar way to antibody-drug conjugates. In the case of moxetumomab pasudotox-tdfk, a fragment of a toxin from *Pseudomonas aeruginosa* bacteria called *Pseudomonas* exotoxin A is attached to an antibody that targets CD22, a protein on the outer surface of cancerous B cells. Tagraxofusp-erzs comprises parts of a toxin from *Corynebacterium diphtheriae* bacteria called diphtheria toxin attached to a protein called interleukin-3 (IL-3), which attaches to CD123, a protein located on the outer surface of blastic plasmacytoid dendritic cell neoplasm cells.