

$$\begin{array}{ccccccc}
 (E_k)^{p-1} & \hookrightarrow & Q^{p-1} & \hookrightarrow & E^{p-1} \\
 \downarrow & & \downarrow & & \downarrow d_E^{p-1} \\
 (E_k)^p & \longleftarrow & \ker(d_{E_k}^p) & \hookrightarrow & Z^p(E) & = & B^p(E)
 \end{array}$$