$$A_{1} \stackrel{f_{A}}{\rightarrowtail} A_{2} \stackrel{g_{A}}{\longrightarrow} A_{3} \stackrel{\delta_{A}}{\longrightarrow}$$

$$\downarrow \qquad \qquad \downarrow^{i_{2}} \qquad \qquad \downarrow^{y} \qquad \qquad \downarrow^{y} \qquad \qquad \downarrow^{x} \qquad \qquad \downarrow^{x} \qquad \qquad \downarrow^{x} \qquad \qquad \downarrow^{p_{2}} \qquad \qquad \downarrow^{z} \qquad \qquad \downarrow^{z} \qquad \qquad \downarrow^{z} \qquad \qquad \downarrow^{z} \qquad \qquad \downarrow^{z_{2}} \qquad \qquad \downarrow^{\varepsilon_{2}} \qquad \qquad \downarrow^{(g_{A})_{*}\varepsilon_{2}}$$