$$\alpha \left|0\right\rangle + \beta \left|1\right\rangle \quad \boxed{I} \quad \alpha \left|0\right\rangle + \beta \left|1\right\rangle$$

$$\alpha \left|0\right\rangle + \beta \left|1\right\rangle \quad \boxed{X} \quad \beta \left|0\right\rangle + \alpha \left|1\right\rangle$$

$$\alpha \left|0\right\rangle + \beta \left|1\right\rangle \; \boxed{Y} \; -\beta i \left|0\right\rangle + \alpha i \left|1\right\rangle$$

$$\alpha \left|0\right\rangle + \beta \left|1\right\rangle \quad \boxed{Z} \quad \alpha \left|0\right\rangle - \beta \left|1\right\rangle$$

$$\alpha \left|0\right\rangle + \beta \left|1\right\rangle \quad \boxed{P(\phi)} \quad \alpha \left|0\right\rangle + e^{i\phi}\beta \left|1\right\rangle$$

$$\alpha \left|0\right\rangle + \beta \left|1\right\rangle \longrightarrow \boxed{H} \longrightarrow \alpha \frac{\left|0\right\rangle + \left|1\right\rangle}{\sqrt{2}} + \beta \frac{\left|0\right\rangle - \left|1\right\rangle}{\sqrt{2}}$$