Fiducial model
$$\rho_\phi = \frac{1}{\lambda_\phi \lambda_q} \sqrt{8\pi\epsilon}(m_{q_1}m_{q_2})^2$$

DM heavier than Higgs

$m_\chi > m_h$

$m_\chi > m_h/2$

$m_\chi > m_h/3$

$m_\chi < m_\phi/3$

$m_\chi < m_\phi/2$

$m_\chi < m_\phi$

DM lighter than scalar

Resonant production

$|\epsilon\lambda_\phi - g_p g_\chi/\sqrt{4\pi}| < y_{eff}$

Overproduction
$\Omega h^2 > 0.12$

Effective coupling $(\epsilon\lambda_\phi)$

Pseudoscalar-DM coupling $(g_p g_\chi/\sqrt{4\pi})$