Given $d$-dimensional Brownian motion $B$, if we first kill $B$ in a domain $D$ and then subordinate by a one-dimensional increasing Levy process $T$ (the subordinator with Laplace exponent $\varphi$), the resulting process is subordinate killed Brownian motion. This process has associated spectrum $\{\mu_j\}_{j \geq 1}$ and transition density $p_{\varphi D}(t,x,y)$. We consider the counting function $N_{\varphi D}(\lambda) = \# \{ j : \mu_j \leq \lambda \}$ and partition function $Z_{\varphi D}(t) = \int_D p_{\varphi D}^\varphi(t,x,x) \ dx$. In this talk, we prove first- and second-order asymptotics of the counting function for subordinate killed Brownian motion on certain domains. By using the Karamata Tauberian theorem we then give first-order asymptotics of the associated partition function for various subordinators. We include second-order asymptotics of the partition function for a specific set of subordinators, namely the $\alpha^2$-stable subordinators. (Received September 22, 2010)