Figure 1: False negatives (in blue) and positives (in red), as a function of some values of the true squared Euclidean distance $d$. Balanced case of two gene lists of size 200 with 20 genes in common. Equivalence limit set at $\Delta = 0.25$. The null hypothesis of the equivalence test states that the true squared Euclidean distance, $d$, is greater than or equal to $\Delta$, that is to say, that both lists are sufficiently dissimilar according to the $\Delta$ limit criterion. Thus, rejecting this hypothesis corresponds to declaring equivalence. When the true simulated distance is $d < \Delta$, not rejecting the null hypothesis (not declaring equivalence) corresponds to a false negative. Its probability is computed as $1 - Pr\{\text{Reject}H_0\}$. When $d \geq \Delta$, declaring equivalence is a false positive. Its probability is directly $Pr\{\text{Reject}H_0\}$. 

$\Delta = 0.25$
Figure 2: False negatives (in blue) and positives (in red), at different scenarios as a function of the true squared Euclidean distance. Balanced case of two gene lists of size 1000 with 100 genes in common. Equivalence limit at $\Delta = 0.25$. The null hypothesis of the equivalence test states that the true squared Euclidean distance, $d$, is greater than or equal to $\Delta$, that is to say, that both lists are sufficiently dissimilar according to the $\Delta$ limit criterion. Thus, rejecting this hypothesis corresponds to declaring equivalence. When the true simulated distance is $d < \Delta$, not rejecting the null hypothesis (not declaring equivalence) corresponds to a false negative. Its probability is computed as $1 - \Pr\{\text{Reject}H_0\}$. When $d \geq \Delta$, declaring equivalence is a false positive. Its probability is directly $\Pr\{\text{Reject}H_0\}$.

$\Delta = 0.25$
Figure 3: False negatives (in blue) and positives (in red), at different scenarios as a function of the true squared Euclidean distance. Balanced case of two gene lists of size 200 with 20 genes in common. Equivalence limit at $\Delta = 0.025$. The null hypothesis of the equivalence test states that the true squared Euclidean distance, $d$, is greater than or equal to $\Delta$, that is to say, that both lists are sufficiently dissimilar according to the $\Delta$ limit criterion. Thus, rejecting this hypothesis corresponds to declaring equivalence. When the true simulated distance is $d < \Delta$, not rejecting the null hypothesis (not declaring equivalence) corresponds to a false negative. Its probability is computed as $1 - \Pr\{\text{Reject}H_0\}$. When $d \geq \Delta$, declaring equivalence is a false positive. Its probability is directly $\Pr\{\text{Reject}H_0\}$.

$\Delta = 0.025$

- $d = 0.005$
- $d = 0.01$
- $d = 0.015$
- $d = 0.02$
- $d = 0.025$
- $d = 0.03$
- $d = 0.035$

$n = m = 200, n_0 = 20$

$\alpha = 0.05$