countH\_Pseudo\_Perm: The Hotelling's T^2 with pseudo inverse of correlation matrix and permutation p-value.

countG: The global test.

countG\_Perm: The global test with permutation p-value.

countGlobalAncova: The global ANCOVA test with permutation p-value.

countN\_Perm: The energy test(N-statistic) with permutation p-value.

countGSEA\_Category: The GSEA-like test(in Category package) with permutation p-value.

Multivariate Normal Distribution	countH Pseudo Perm	countG	countG Perm	countGlobalAncova	countN Perm	countGSEA Category
composition:1, rho:0.1, probes:30, size:70, difference:0.1	0.144	0.182				0.217
composition:1, rho:0.1, probes:30, size:70, difference:0.3	0.746	0.868	0.864	0.854	0.859	0.927
composition:1, rho:0.1, probes:30, size:70, difference:0.5	0.995	0.999	0.999	0.999	0.999	1
composition:1, rho:0.1, probes:30, size:70, difference:0.7	1	1	1	1	1	1
composition:1, rho:0.1, probes:30, size:70, difference:0.9	1	1	1	1	1	1
composition:1, rho:0.1, probes:30, size:70, difference:1	1	1	1	1	1	1
composition:1, rho:0.1, probes:30, size:70, difference:2	1	1	1	1	1	1
composition:1, rho:0.9, probes:30, size:70, difference:0.1	0.074	0.075	0.074	0.068	0.069	0.073
composition:1, rho:0.9, probes:30, size:70, difference:0.3	0.134	0.26	0.261	0.243	0.248	0.257
composition:1, rho:0.9, probes:30, size:70, difference:0.5	0.259	0.579	0.572	0.558	0.545	0.578
composition:1, rho:0.9, probes:30, size:70, difference:0.7	0.461	0.845	0.847	0.834	0.842	0.852
composition:1, rho:0.9, probes:30, size:70, difference:0.9	0.722	0.975	0.975	0.968	0.962	0.973
composition:1, rho:0.9, probes:30, size:70, difference:1	0.823	0.991	0.991	0.991	0.99	0.991
composition:1, rho:0.9, probes:30, size:70, difference:2	1	1	1	1	1	1