Criterion	BF_{is}	BF_{mc}	eBP_{is}	eBP_{mc}
FPR	0.01 (0.01)	0.13 (22.5)	0.17 (0.00)	0.03 (8.57)
TPR ($\|\beta_i\| = 0.05$)	39.5 (1.00)	69.0 (72.1)	63.2 (0.00)	53.6 (49.8)
TPR ($\|\beta_i\| = 0.1$)	99.6 (5.60)	99.9 (98.3)	99.7 (0.00)	99.8 (92.0)
TPR ($\|\beta_i\| = 0.2$)	100 (58.6)	100 (100)	100 (0.75)	100 (99.9)

Table S2: True (TPR) and False (FPR) Positive Rates as a function of the decision criterion and the model parametrization (with $\boldsymbol{\Omega} = \widehat{\boldsymbol{\Omega}}^{\text{benv}}_{\text{HSA}}$ for the SpaH and $\boldsymbol{\Omega} = \widehat{\boldsymbol{\Omega}}^{\text{benv}}_{\text{BTA}}$ for the SpaB data sets respectively). The thresholds are set to 20 dB for both the BF_{is} and BF_{mc} Bayes Factors; and to 10^{-3} for both the eBP_{is} and eBP_{mc} (empirical) Bayesian P–values. The true and false positive rates (given in %) are computed by combining results over the ten replicate data sets from the SpaH and SpaB (given in parenthesis) scenarios.