



Additional file 6: **Figure S5.** Despite inter-replicate variability, cultures can be clustered and accurately classified. **(a)** Representative images of both hippocampal and cortical cultures at different DIV for 3 different replicates; **(b)** PCA based on different descriptor sets for individual replicates. PCA based on the integrated descriptor set resulted in the best clustering ($n_{\text{bio}} = 3 \times n_{\text{tech}} = 6$) (Ellipses show the 67% confidence interval); **(c)** Confusion matrices of classification

results using a random forest. The misclassification rate (MCR) was lowest using the integrated morphological descriptor set ($n_{\text{bio}} = 3 \times n_{\text{tech}} = 6$); **(d)** Confusion matrices of classification results using a linear discriminant analysis. The MCR, compared to RFC, was lower for morphological data, but higher for functional data ($n_{\text{bio}} = 3 \times n_{\text{tech}} = 6$).