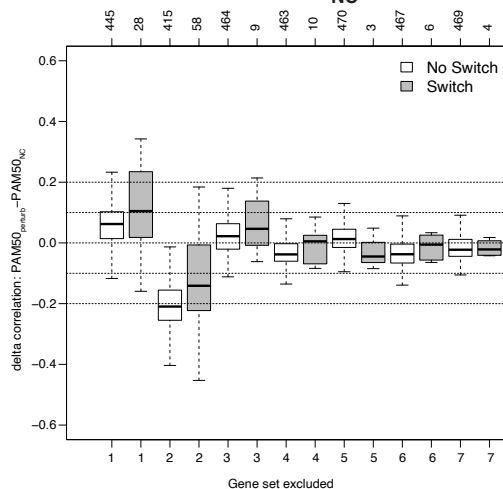
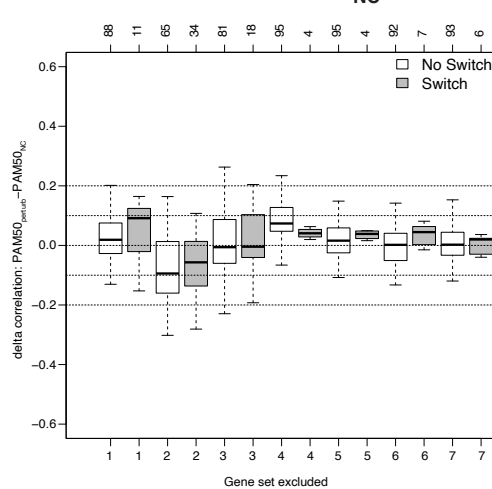


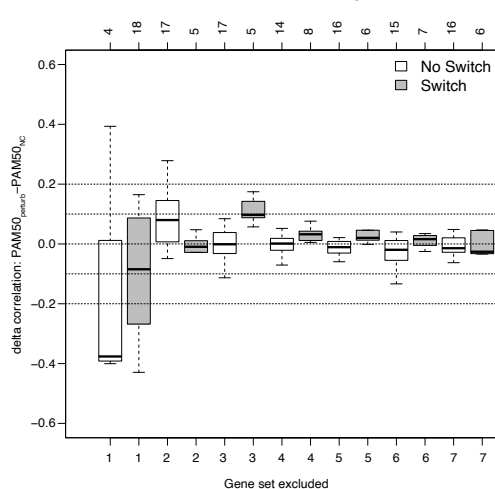
A) Subtyped as Basal_{NC}



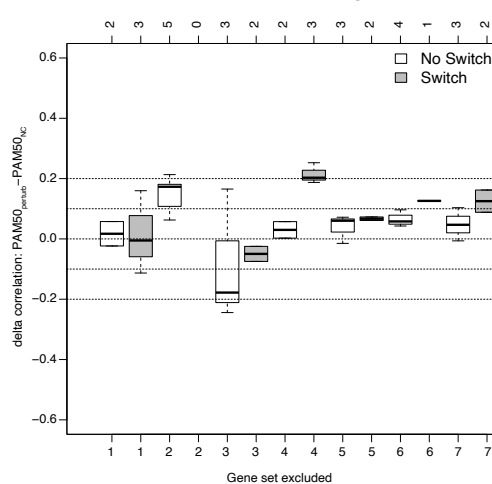
B) Subtyped as HER2E_{NC}



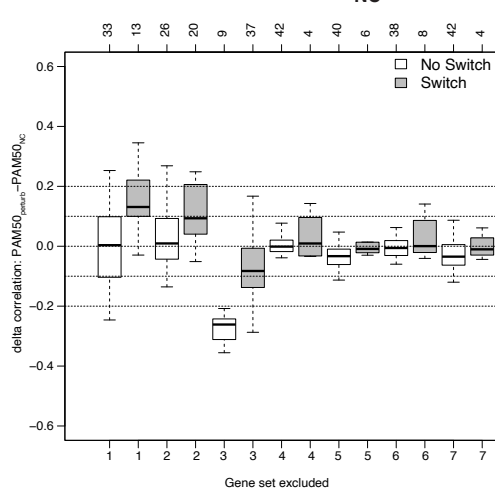
C) Subtyped as LumA_{NC}



D) Subtyped as LumB_{NC}

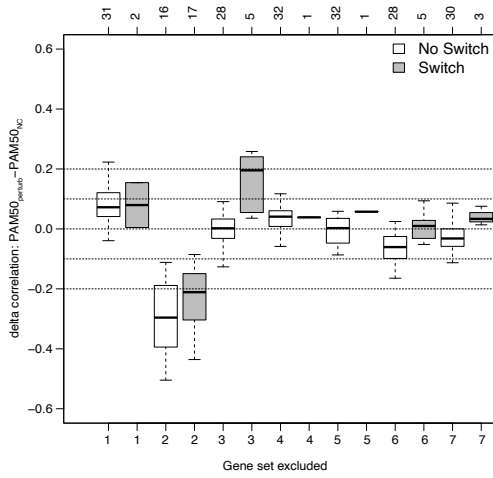


E) Subtyped as Normal_{NC}

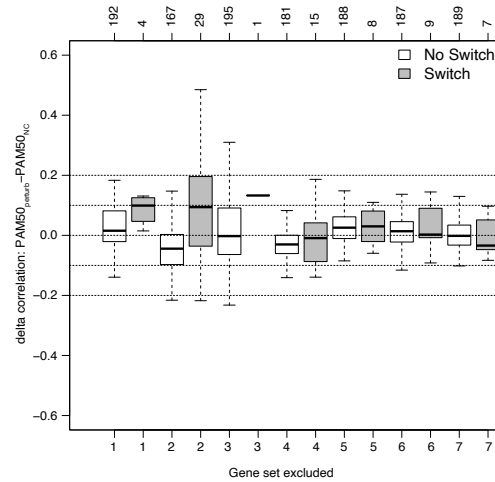


Supplementary Figure S2. Difference (delta-value) in subtype correlations between TNBC tumors stratified by their PAM50_{NC} subtypes. The delta-value corresponds to the correlation for the PAM50_{perturb} subtype after *leave-OneGeneSet-out* reclassification minus the PAM50_{NC} subtype correlation. White boxes represent samples where there were no switch in subtype after reclassification, i.e., for instance Basal_{NC} before and Basal_{perturb} after reclassification. Grey boxes represent cases where a subtype switch occurred, e.g., Basal_{NC} before but HER2E_{perturb} after reclassification based on exclusion of a specific gene set. **(A)** Basal_{NC} tumors. **(B)** HER2E_{NC} tumors. **(C)** LumA_{NC} tumors. **(D)** LumB_{NC} tumors. **(E)** Normal_{NC} tumors.

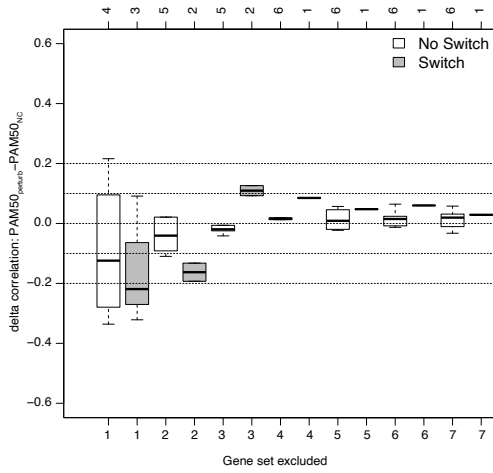
A) Subtyped as Basal_{NC}



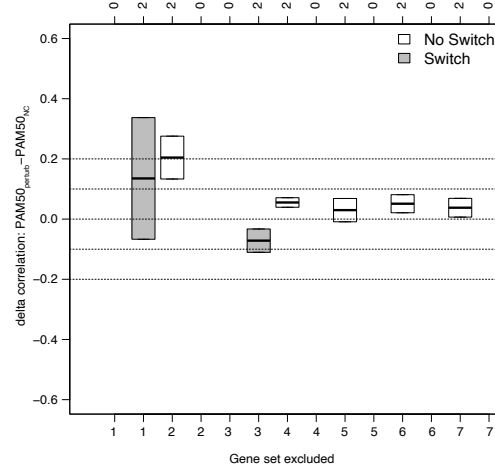
B) Subtyped as HER2E_{NC}



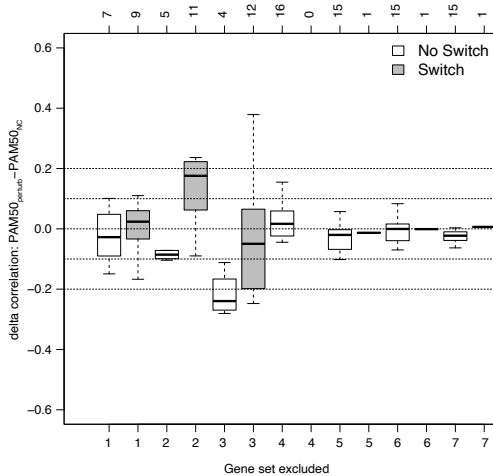
C) Subtyped as LumA_{NC}



D) Subtyped as LumB_{NC}

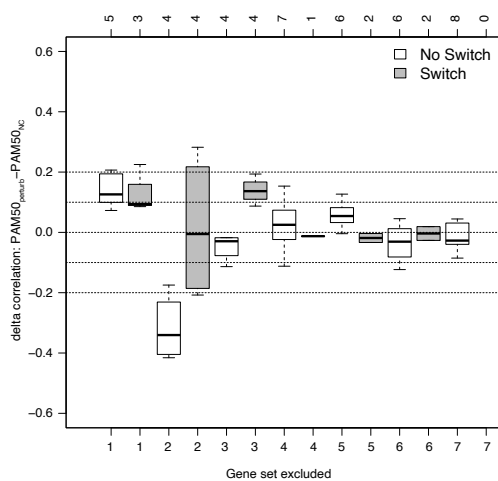


E) Subtyped as Normal_{NC}

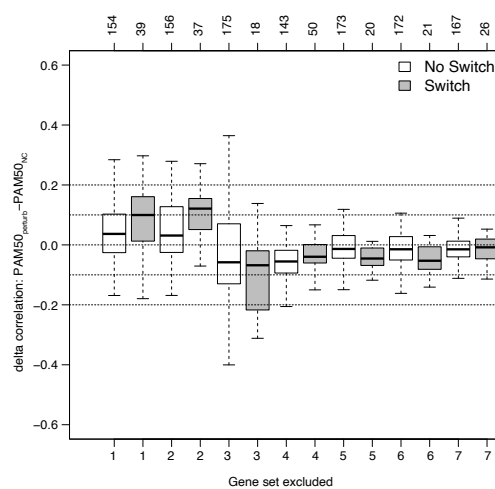


Supplementary Figure S3. Difference (delta-value) in subtype correlations between ERnHER2p tumors stratified by their PAM50_{NC} subtypes. The delta-value corresponds to the correlation for the PAM50_{perturb} subtype after *leave-OneGeneSet-out* reclassification minus the PAM50_{NC} subtype correlation. White boxes represent samples where there were no switch in subtype after reclassification, i.e. , for instance Basal_{NC} before and Basal_{perturb} after reclassification. Grey boxes represent cases where a subtype switch occurred, e.g., Basal_{NC} before but HER2E_{perturb} after reclassification based on exclusion of a specific gene set. **(A)** Basal_{NC} tumors. **(B)** HER2E_{NC} tumors. **(C)** LumA_{NC} tumors. **(D)** LumB_{NC} tumors. **(E)** Normal_{NC} tumors.

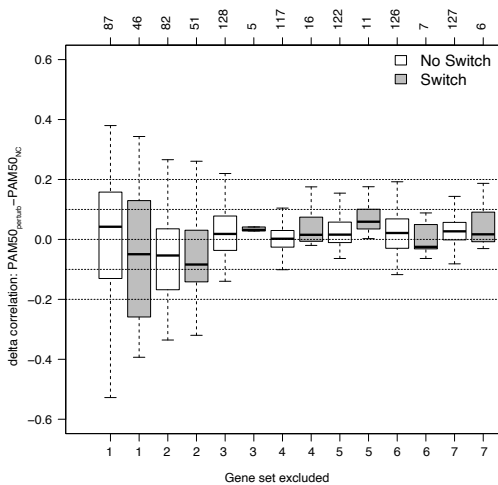
A) Subtyped as Basal_{NC}



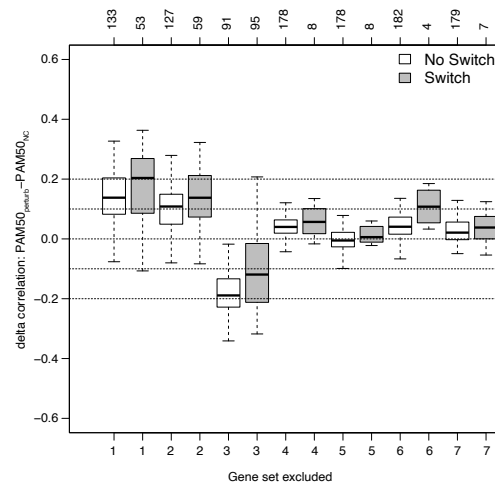
B) Subtyped as HER2E_{NC}



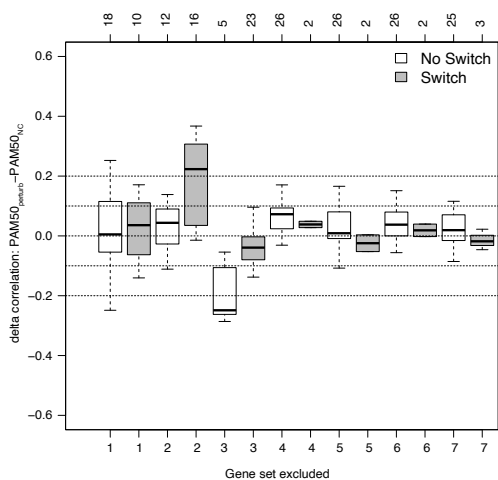
C) Subtyped as Luma_{NC}



D) Subtyped as LumB_{NC}

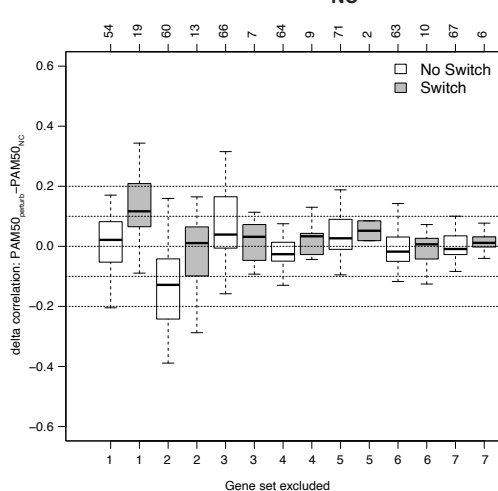


E) Subtyped as Normal_{NC}

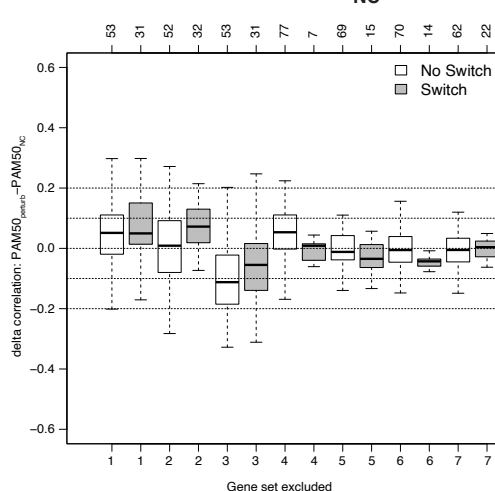


Supplementary Figure S4. Difference (delta-value) in subtype correlations between ERpHER2p tumors stratified by their PAM50_{NC} subtypes. The delta-value corresponds to the correlation for the PAM50_{perturb} subtype after *leave-OneGeneSet-out* reclassification minus the PAM50_{NC} subtype correlation. White boxes represent samples where there were no switch in subtype after reclassification, i.e. , for instance Basal_{NC} before and Basal_{perturb} after reclassification. Grey boxes represent cases where a subtype switch occurred, e.g., Basal_{NC} before but HER2E_{perturb} after reclassification based on exclusion of a specific gene set. **(A)** Basal_{NC} tumors. **(B)** HER2E_{NC} tumors. **(C)** Luma_{NC} tumors. **(D)** LumB_{NC} tumors. **(E)** Normal_{NC} tumors.

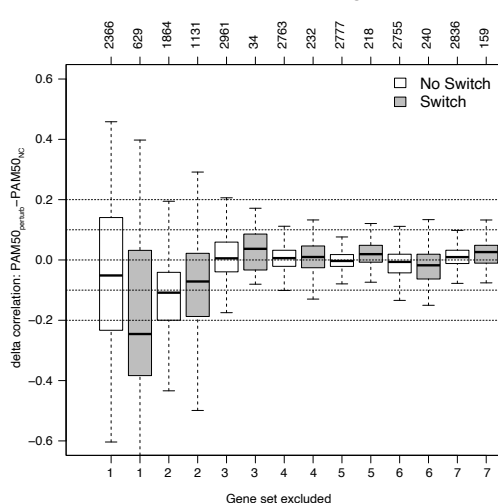
A) Subtyped as Basal_{NC}



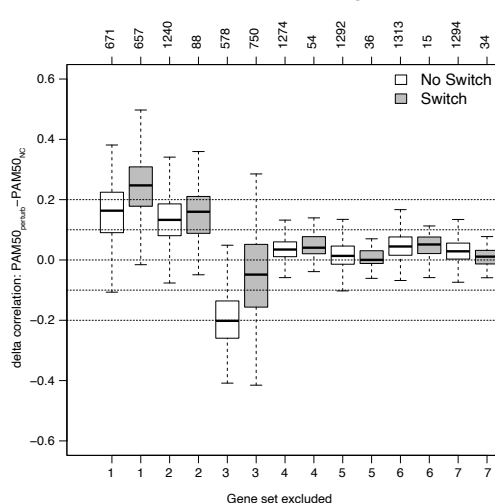
B) Subtyped as HER2E_{NC}



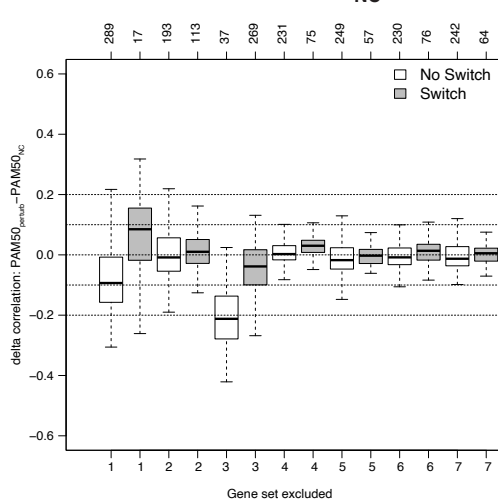
C) Subtyped as LumA_{NC}



D) Subtyped as LumB_{NC}



E) Subtyped as Normal_{NC}



Supplementary Figure S5. Difference (delta-value) in subtype correlations between ERpHER2n tumors stratified by their PAM50_{NC} subtypes. The delta-value corresponds to the correlation for the PAM50_{perturb} subtype after *leave-OneGeneSet-out* reclassification minus the PAM50_{NC} subtype correlation. White boxes represent samples where there were no switch in subtype after reclassification, i.e. , for instance Basal_{NC} before and Basal_{perturb} after reclassification. Grey boxes represent cases where a subtype switch occurred, e.g., Basal_{NC} before but HER2E_{perturb} after reclassification based on exclusion of a specific gene set. **(A)** Basal_{NC} tumors. **(B)** HER2E_{NC} tumors. **(C)** LumA_{NC} tumors. **(D)** LumB_{NC} tumors. **(E)** Normal_{NC} tumors.