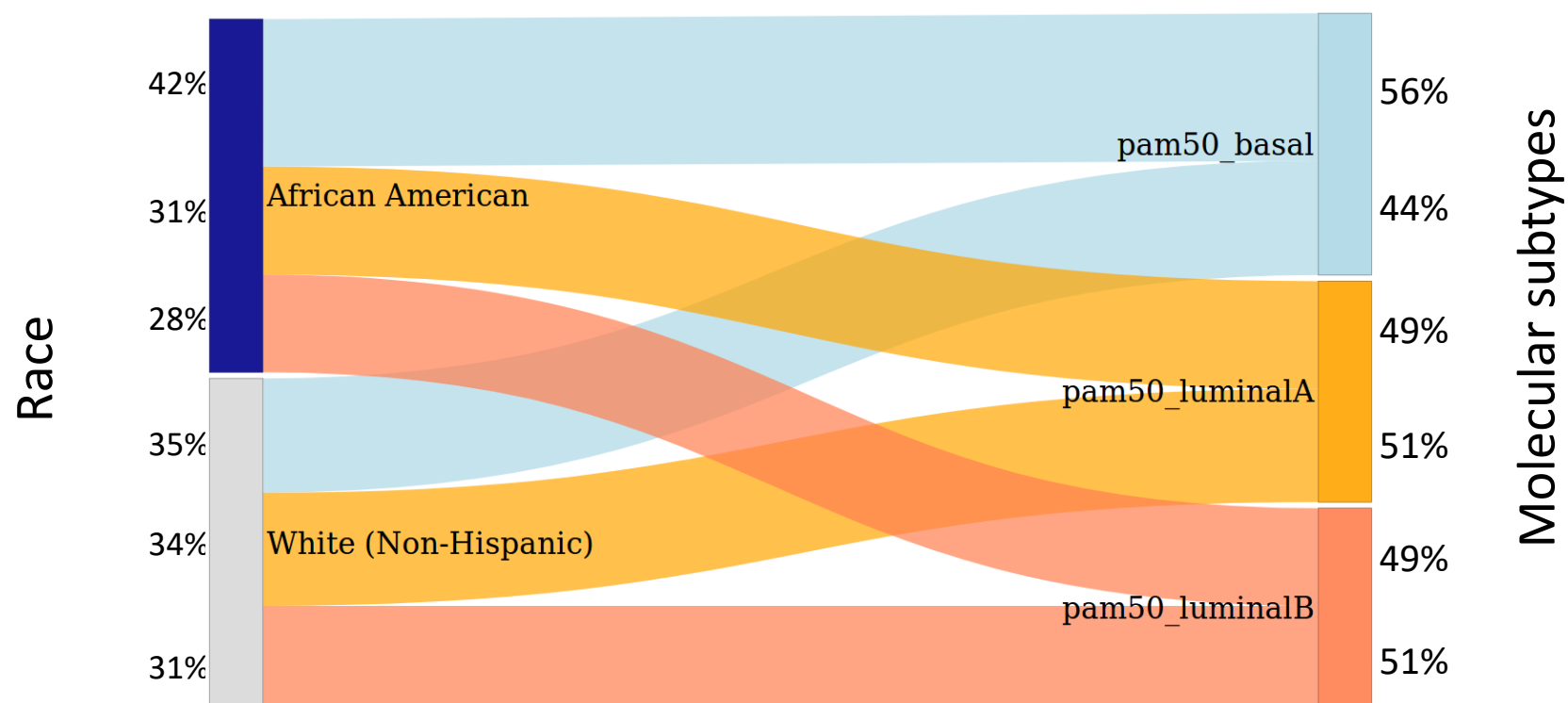
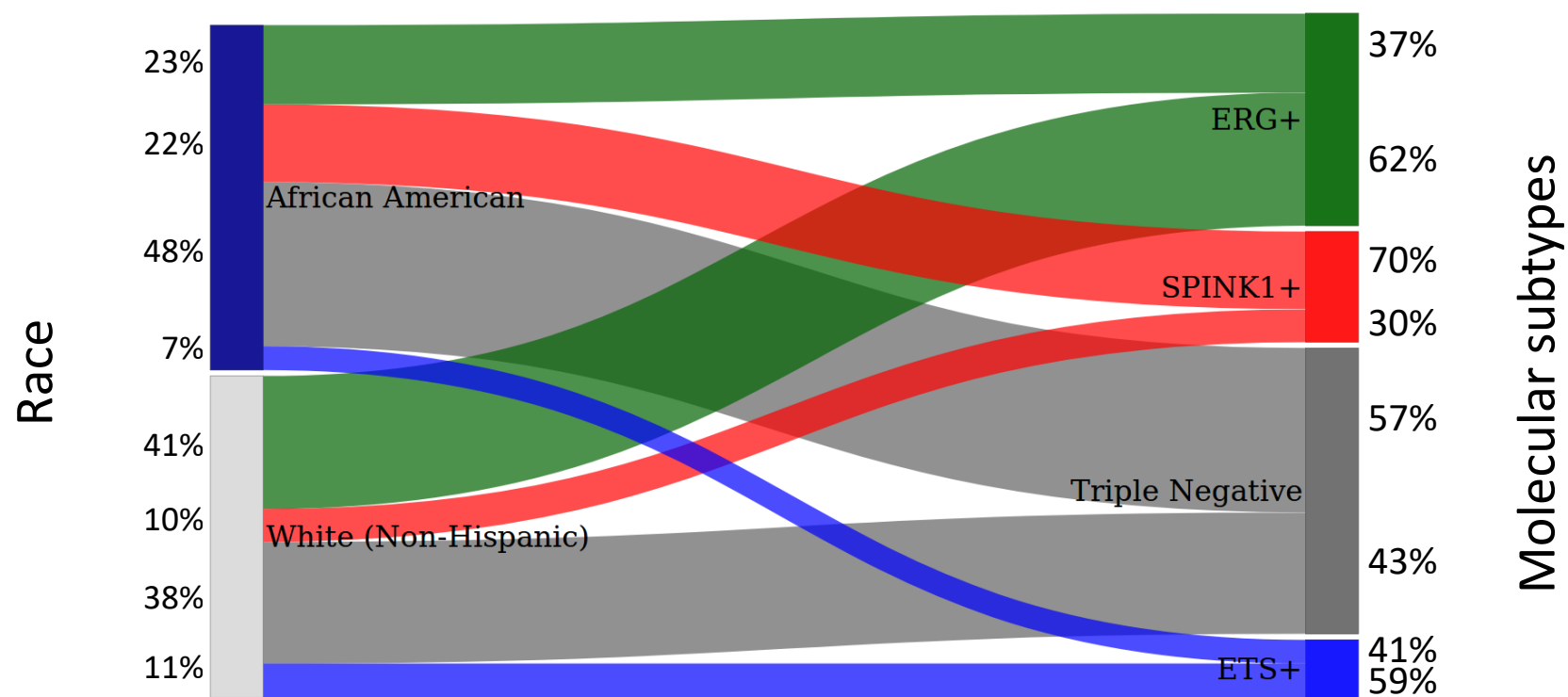
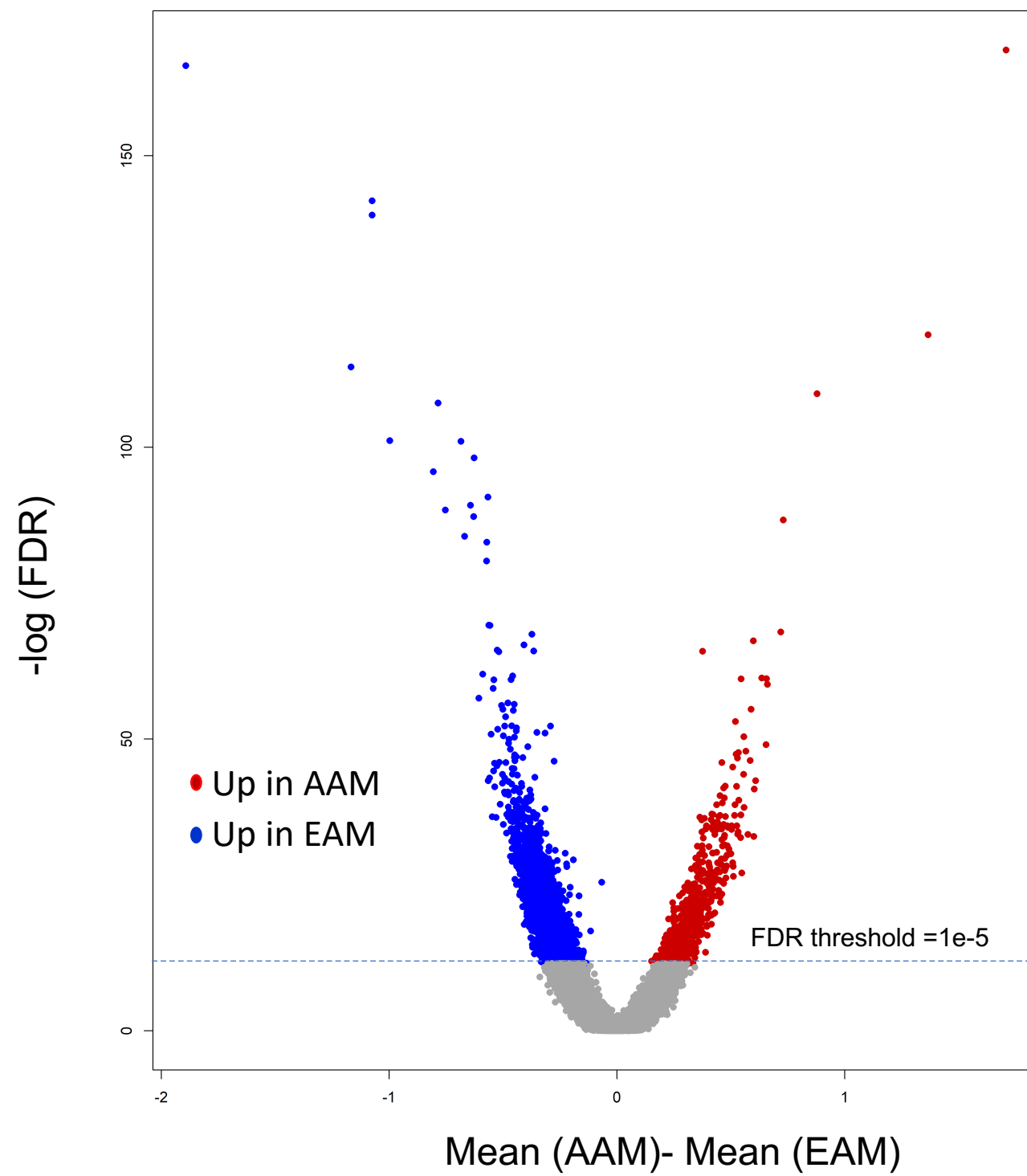


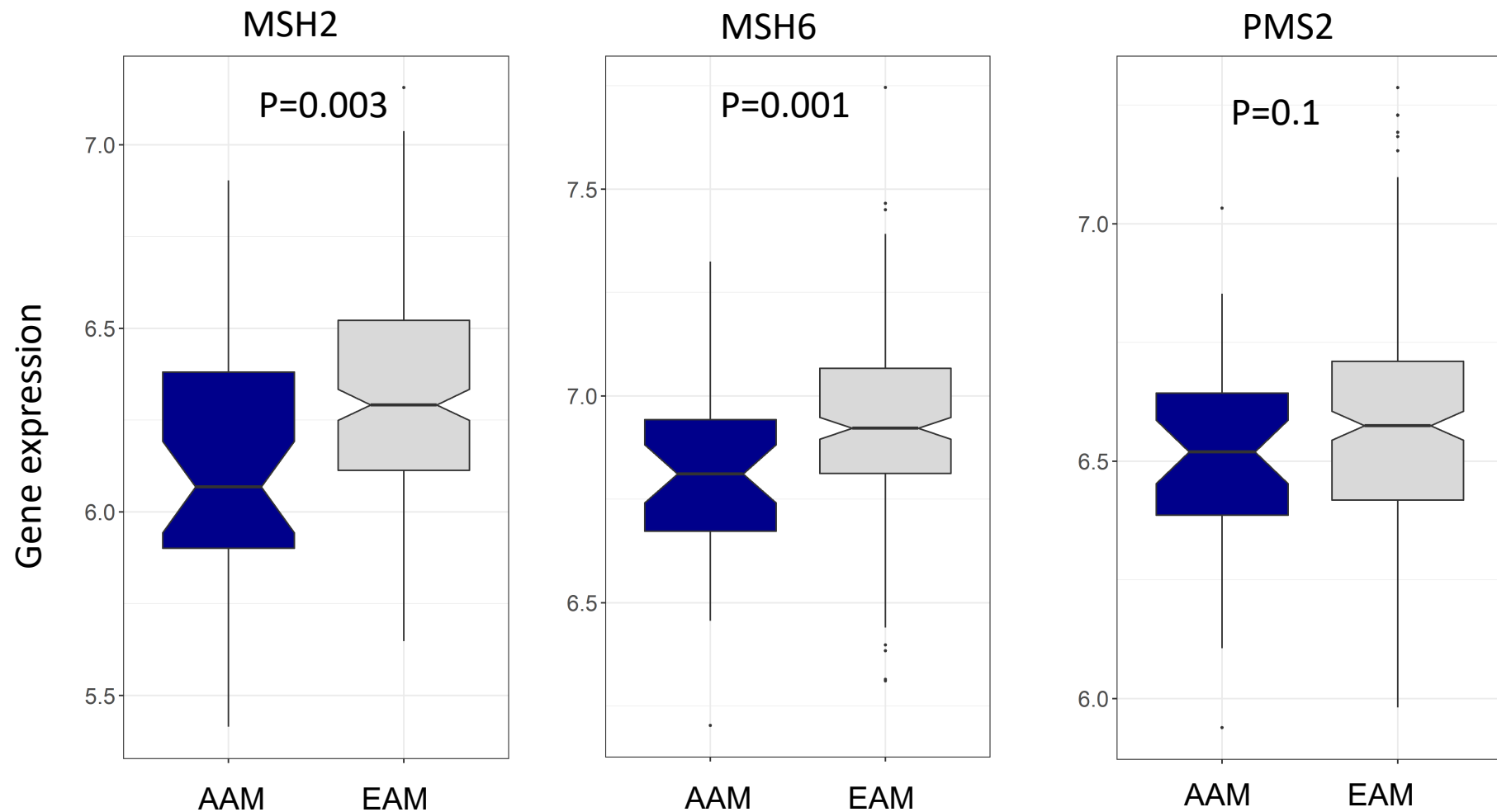


**Supplemental Figure 1:** Prevalence of race-based genomic subtypes in prostate cancer. Association of molecular subtypes between race and ETS-based (top) and PAM50 (bottom) subtypes. African American patients are more enriched in the SPINK1+ subtype and less enriched in the ERG+ subtype compared with White patients. However, African American patients are more enriched in basal subtypes. Patients that are ERG-, SPINK1- and ETS- are referred to as Triple negative.



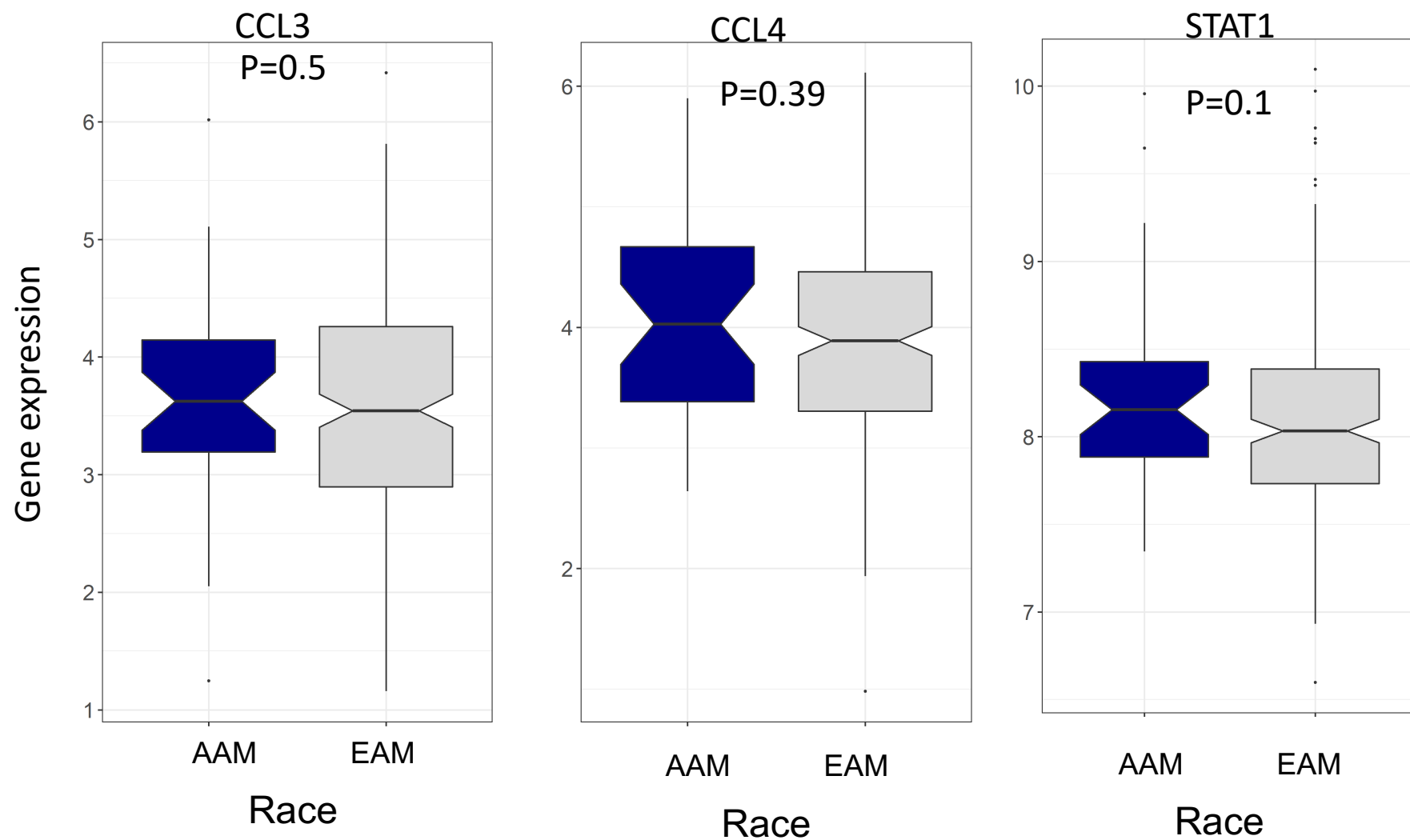
**Supplemental Figure 2: Volcano plot of differentially expressed genes.**  
A volcano plot showing 778 genes upregulated in AAM (red) and 3807 genes upregulated in EAM (blue) in our cohort.

### DNA repair genes

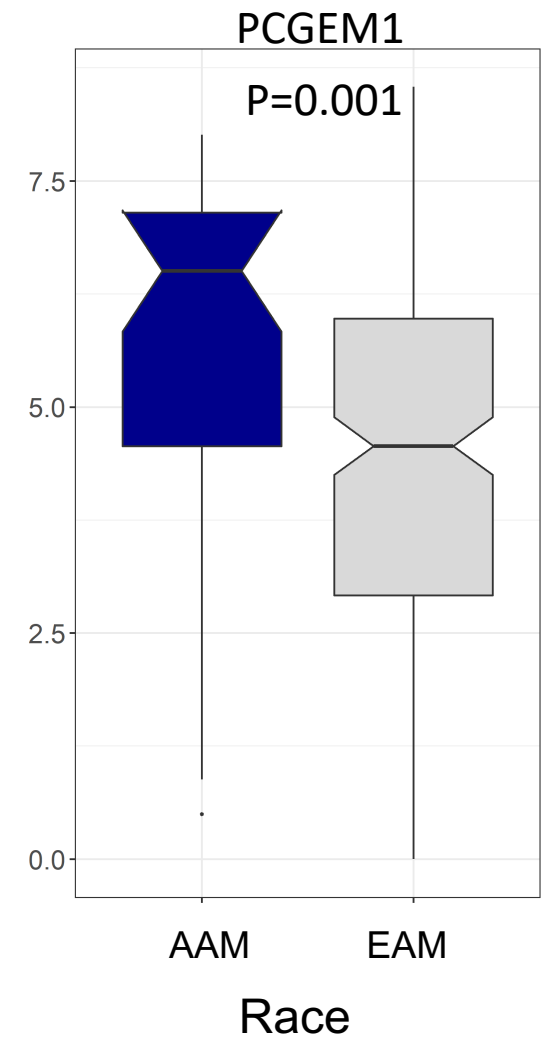


**Supplemental Figure 3:**  
**Box plots of DNA**  
**repair genes, inflammation**  
**genes in TCGA cohort.**  
Using TCGA cohort with 37  
African American (AAM) and 233  
European American (EAM), AAM  
tend to be lower in DNA repair  
genes and higher immune  
related genes. Error bars  
represent the 95% confidence  
interval.

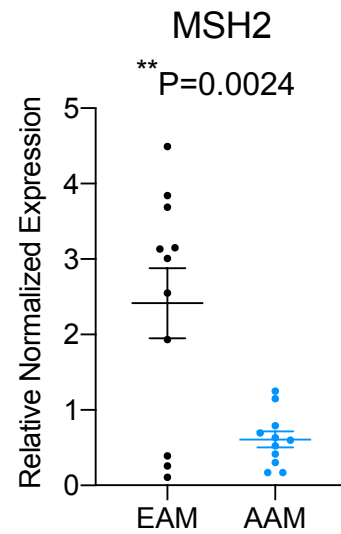
### Inflammation genes



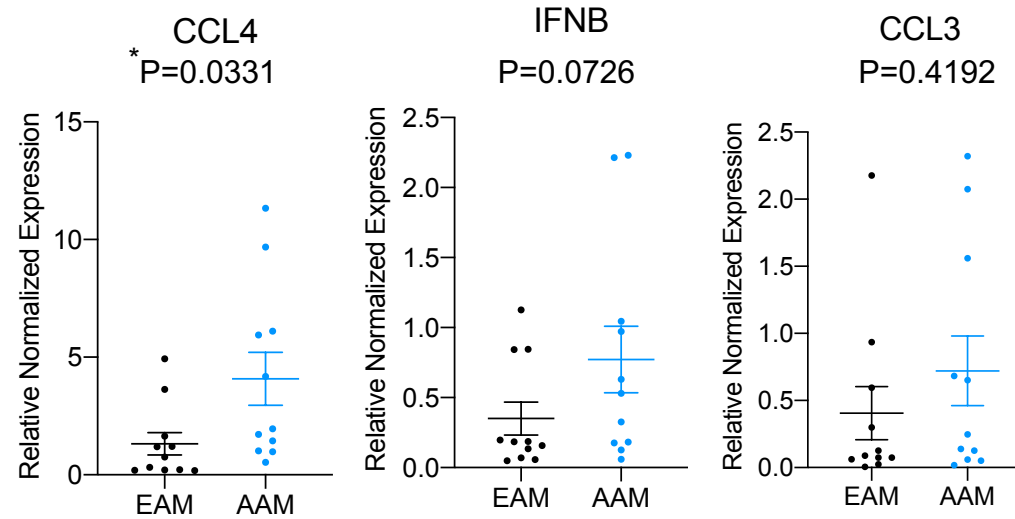
### AR genes



## DNA REPAIR

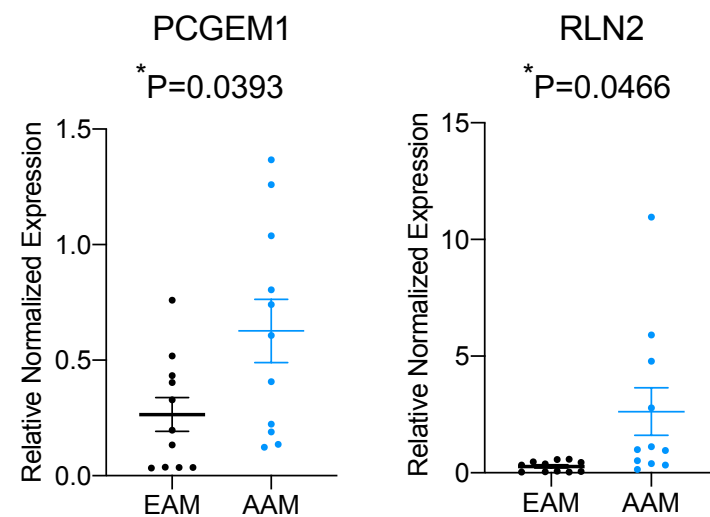


## INFLAMMATION



Grade Group >3  
n=11

## AR RESPONSE



### Supplemental Figure 4: External validation of DDR, immune response and AR response genes.

RNA isolated from primary prostate tissues from EAM and AAM subjects (N=11, Grade Group>3) was used in qPCR Analysis. Representative genes from DNA repair pathway (MSH2), Inflammation (CCL3, CCL4, IFNB,) and AR response (RLN2, PCGEM1) are shown. Gene expression trends confirm that immune and AR response genes are upregulated in AAM subjects while DNA mismatch repair gene MSH2 is downregulated in AAM. Unpaired t-tests was performed for comparisons (relative target gene expression) Data and Error bars are presented as mean  $\pm$  SEM and \*P<0.05, \*\*P<0.005 were considered statistically significant. AAM = African American; EAM = European American. Error bars represent the 95% confidence interval.

**Supplemental Table 1. Race-based chemotherapy drug-response profiling.** The drug-response profile shows that African-American patients have a higher potential response rate to alkylating agent-based chemotherapy, whereas European-American patients have a higher response rate to taxane-based chemotherapy.

| <b>Drug Name</b> | <b>Target of Inhibition</b> | <b>Agent Class</b> | <b>MVA Odds Ratio</b> | <b>MVA <i>P</i> Value</b> | <b>FDR Adjusted MVA <i>P</i> Value</b> |
|------------------|-----------------------------|--------------------|-----------------------|---------------------------|----------------------------------------|
| Carboplatin      | DNA                         | Alkylating         | 1.09                  | 1.25E-06                  | 5.55E-05                               |
| Cisplatin        | DNA                         | Alkylating         | 1.07                  | 2.12E-04                  | 9.76E-04                               |
| Methotrexate     | DHFR                        | Anti-folate        | 0.91                  | 2.70E-05                  | 3.44E-04                               |
| Docetaxel        | Tubulin                     | Anti-microtubule   | 0.94                  | 2.05E-05                  | 3.05E-04                               |
| Vinorelbine      | Tubulin                     | Anti-microtubule   | 0.97                  | 5.45E-04                  | 1.73E-03                               |
| Ixabepilone      | Tubulin                     | Anti-microtubule   | 0.96                  | 6.67E-04                  | 1.98E-03                               |
| Paclitaxel       | Tubulin                     | Anti-microtubule   | 0.97                  | 9.78E-04                  | 2.72E-03                               |

DHFR = dihydrofolate reductase; FDR = false discovery rate; MVA = multivariable analysis.