

## Appendix: code

All analysis was done using *R software (v4.1.2)*. Code is available at <https://github.com/Minh-AnhHuynh/Osteosarcoma-Project>

```
tpm_function <- function(counts, len) {  
  x <- counts / len  
  return(t(t(x) * 1e6 / colSums(x)))  
}
```

```
sessionInfo()
```

```
## R version 4.1.2 (2021-11-01)  
## Platform: x86_64-w64-mingw32/x64 (64-bit)  
## Running under: Windows 10 x64 (build 22000)  
##  
## Matrix products: default  
##  
## locale:  
## [1] LC_COLLATE=French_France.1252 LC_CTYPE=French_France.1252  
## [3] LC_MONETARY=French_France.1252 LC_NUMERIC=C  
## [5] LC_TIME=French_France.1252  
##  
## attached base packages:  
## [1] stats      graphics  grDevices  utils      datasets  methods   base  
##  
## loaded via a namespace (and not attached):  
## [1] digest_0.6.29   crayon_1.5.1    prettycode_1.1.0 magrittr_2.0.3  
## [5] evaluate_0.15   rlang_1.0.2     stringi_1.7.6    cli_3.3.0  
## [9] rstudioapi_0.13 rmarkdown_2.14  tools_4.1.2      stringr_1.4.0  
## [13] xfun_0.31       yaml_2.3.5      fastmap_1.1.0    compiler_4.1.2  
## [17] htmltools_0.5.2 knitr_1.39
```