# Charts of genus and ORF attributes

- · Family attributes
  - o Proportion of Guanine in the genome
  - Proportion of Guanine in region 1
  - Proportion of Guanine in region 2
  - Proportion of Guanine in region 3
  - o Proportion of Guanine in region 4
  - Proportion of Adenine in the genome
  - Proportion of Adenine in region 1
  - Proportion of Adenine in region 2
  - Proportion of Adenine in region 3
  - o Proportion of Adenine in region 4
  - o Proportion of Thymine in the genome
  - Proportion of Thymine in region 1
  - o Proportion of Thymine in region 2
  - Proportion of Thymine in region 3
  - o Proportion of Thymine in region 4
  - o Proportion of Cytosine in the genome
  - o Proportion of Cytosine in region 1
  - Proportion of Cytosine in region 2
  - Proportion of Cytosine in region 3
  - Proportion of Cytosine in region 4
  - Proportion of Guanine and Cytosine in region 1
  - Proportion of Guanine and Cytosine in region 2
  - Proportion of Guanine and Cytosine in region 3
  - Proportion of Guanine and Cytosine in region 4
- · Genus attributes
  - Proportion of Guanine in the genome
  - o Proportion of Guanine in region 1
  - Proportion of Guanine in region 2
  - Proportion of Guanine in region 3
  - Proportion of Guanine in region 4
  - o Proportion of Adenine in the genome
  - o Proportion of Adenine in region 1
  - Proportion of Adenine in region 2
  - Proportion of Adenine in region 3
  - Proportion of Adenine in region 4
  - o Proportion of Thymine in the genome
  - Proportion of Thymine in region 1
  - Proportion of Thymine in region 2
  - Proportion of Thymine in region 3
  - Proportion of Thymine in region 4
  - Proportion of Cytosine in the genome
  - Proportion of Cytosine in region 1
  - Proportion of Cytosine in region 2
  - Proportion of Cytosine in region 3
  - Proportion of Cytosine in region 4
  - o Proportion of Guanine and Cytosine in region 1
  - Proportion of Guanine and Cytosine in region 2
  - o Proportion of Guanine and Cytosine in region 3
  - Proportion of Guanine and Cytosine in region 4
- ORF attributes
  - o Proportion of Arginine
  - Proportion of Alanine
  - Proportion of Asparagine
  - Proportion of Aspartic Acid
  - o Proportion of Cysteine
  - o Proportion of Glutamic Acid
  - Proportion of Glutamine
  - o Proportion of Glycine
  - Proportion of Histidine

- o Proportion of Isoleucine
- Length
- Sense

- Proportion of Leucine
  Proportion of Lysine
  Proportion of Methionine
  Proportion of Adenine

- Proportion of Adenine in region 1
  Proportion of Adenine in region 2
- Proportion of Adelinie in region 2
  Proportion of Cytosine
  Proportion of Cytosine in region 1
  Proportion of Cytosine in region 2

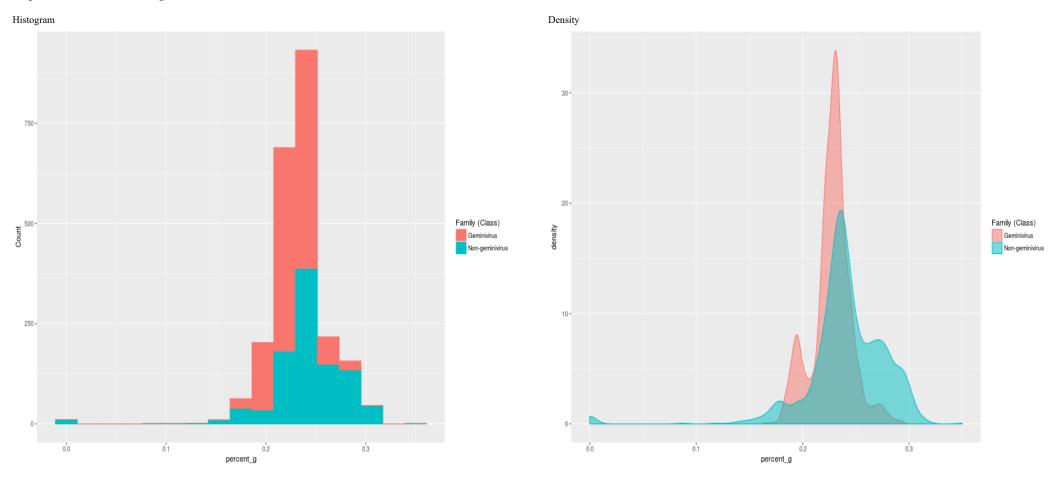
- Proportion of Guanine
  Proportion of Guanine in region 1
  Proportion of Guanine in region 1
  Proportion of Guanine in region 2
  Proportion of nucleotides regarding the genome (ORF\_size / genome\_size)

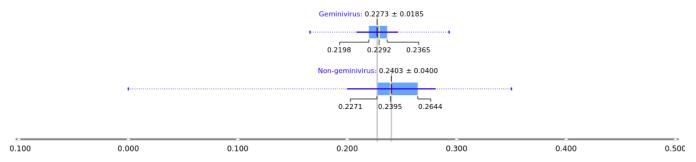
- Proportion of Thymine
  Proportion of Thymine in region 1
  Proportion of Thymine in region 2
  Proportion of Phenylalanine
- Proportion of Proline
  Proportion of Serine

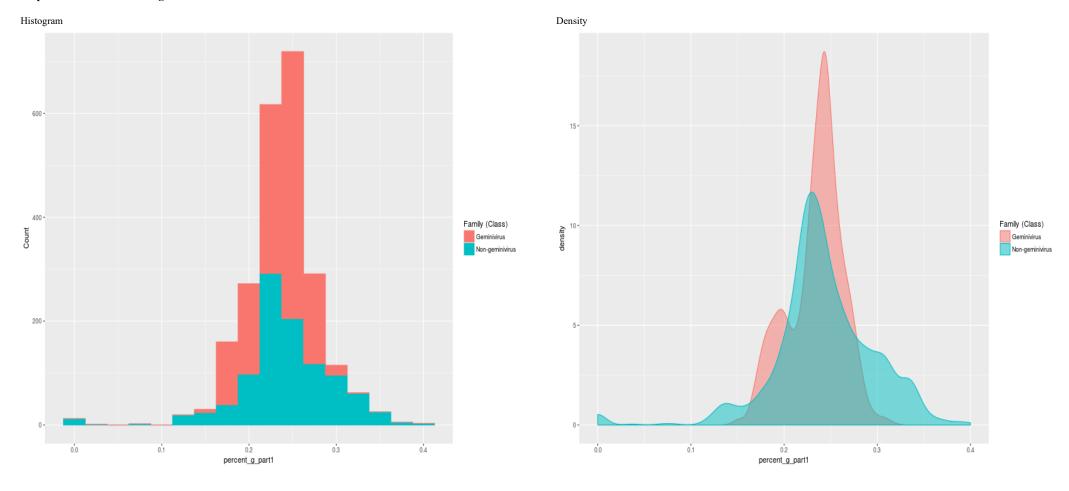
- Proportion of Threonine
  Proportion of Tryptophan
  Proportion of Tyrosine
  Proportion of Valine

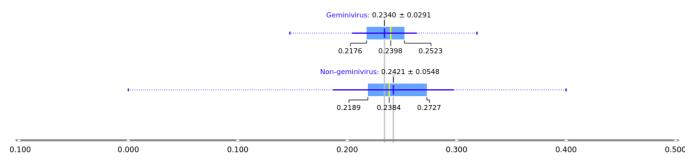
# **Charts of Family attributes**

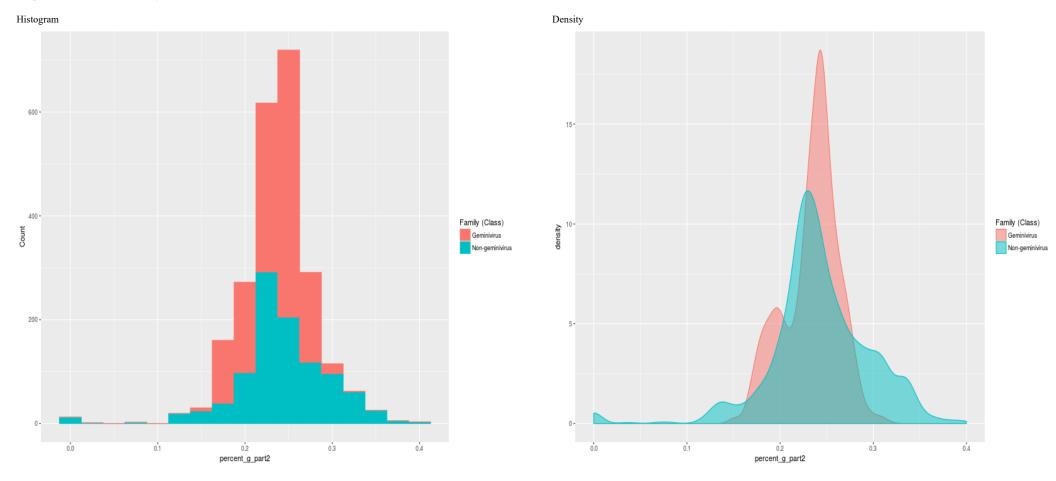
# Proportion of Guanine in the genome

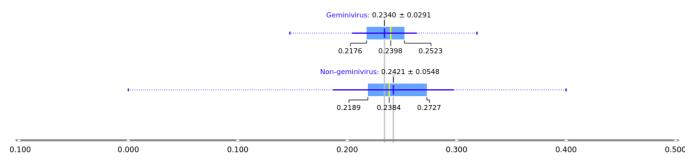


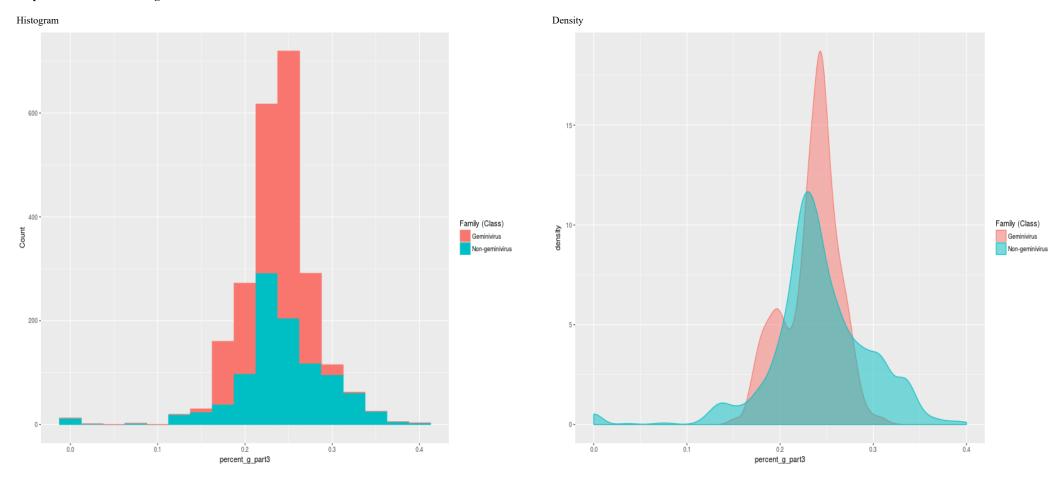


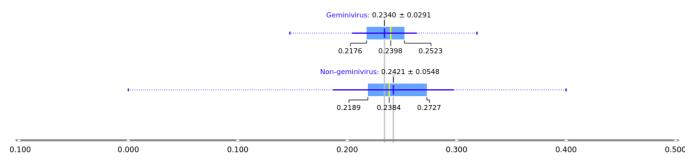


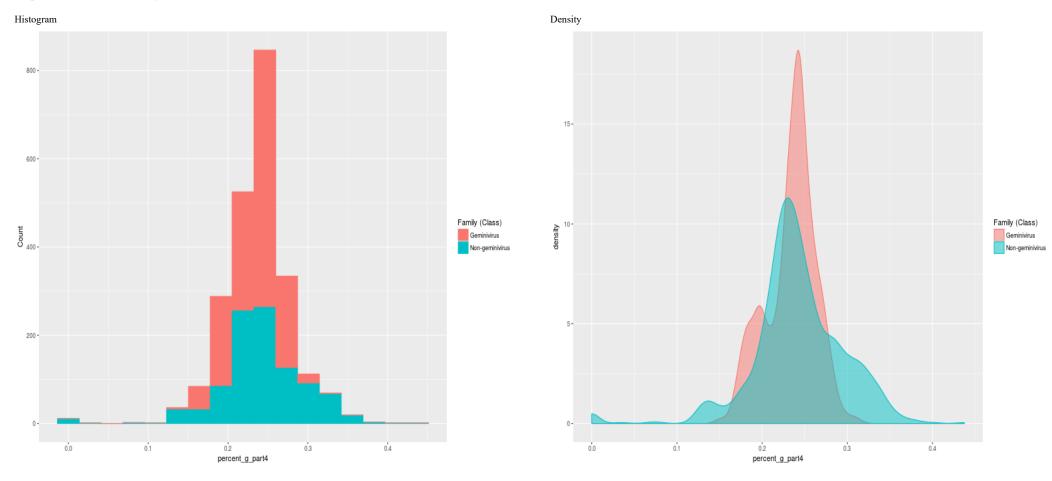


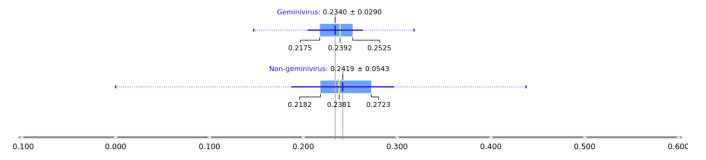




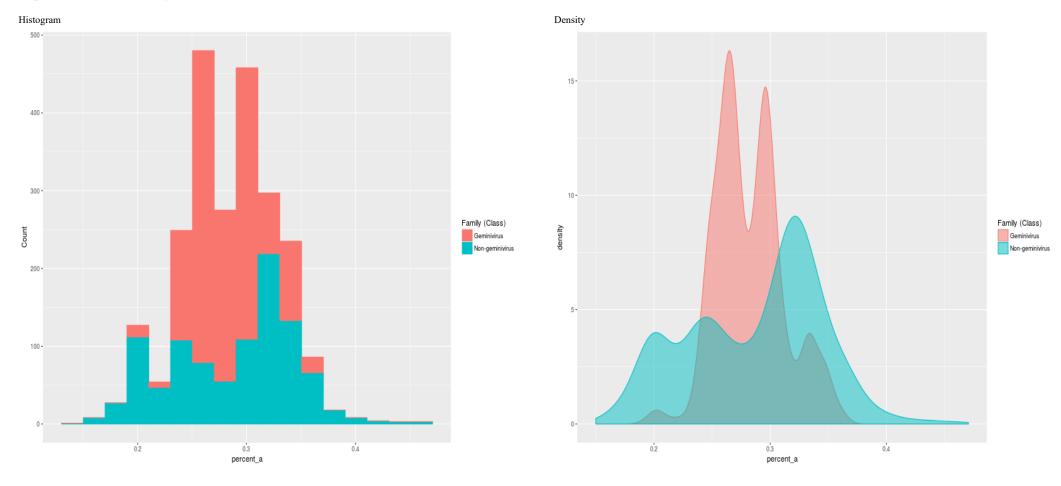


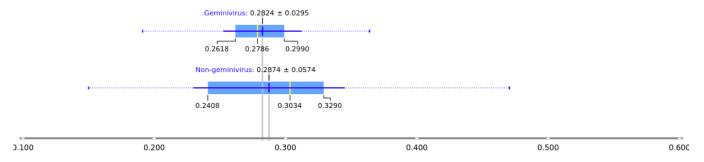


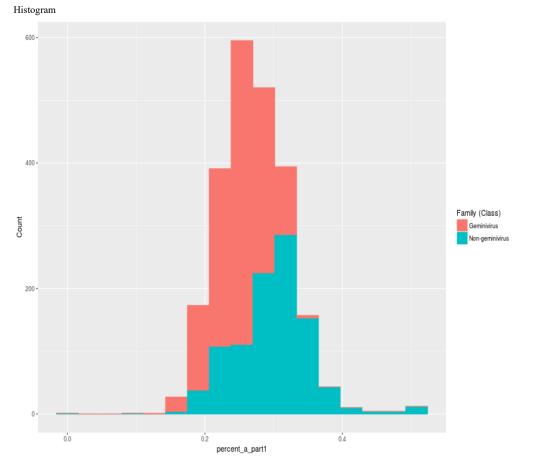


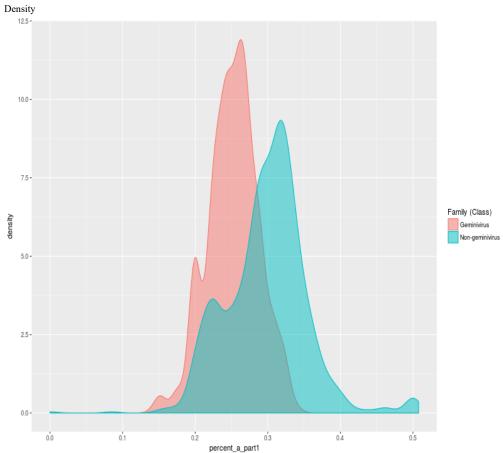


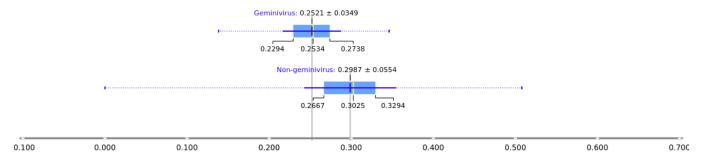
# Proportion of Adenine in the genome

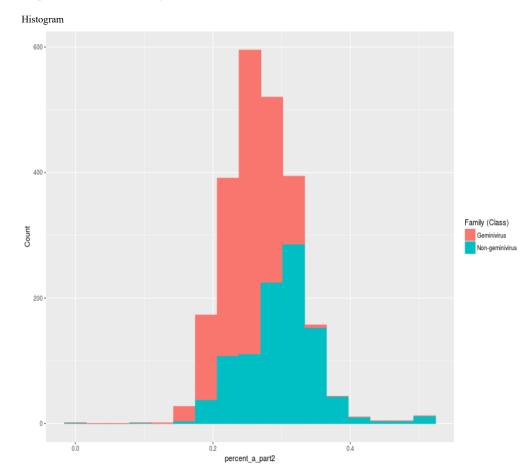


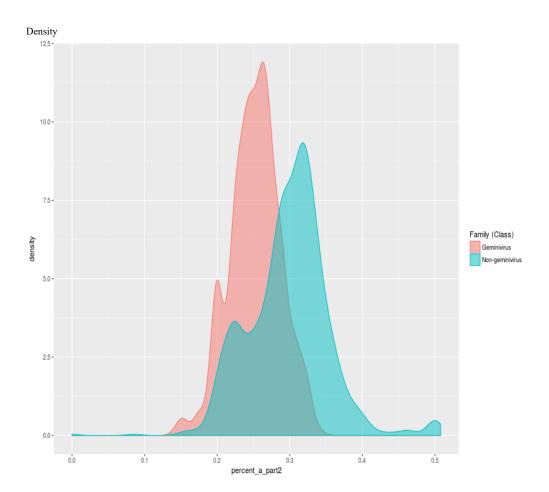


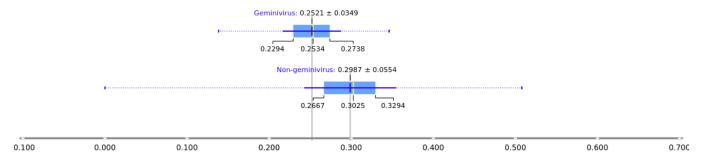


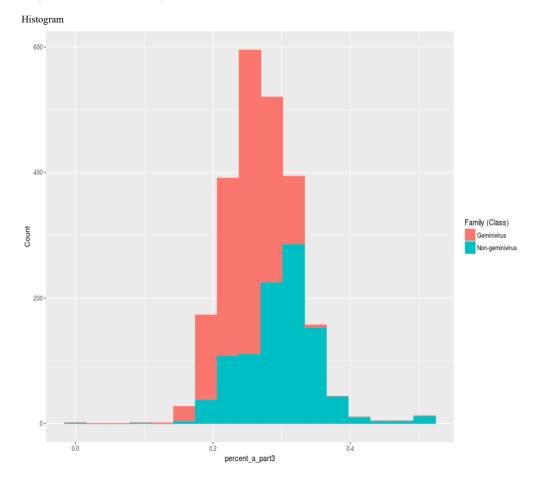


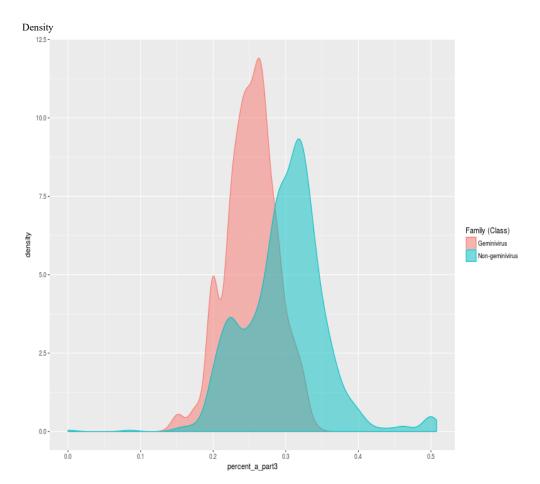


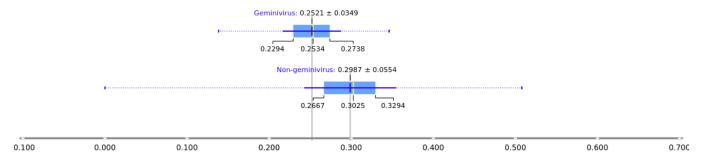


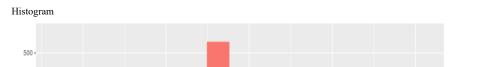


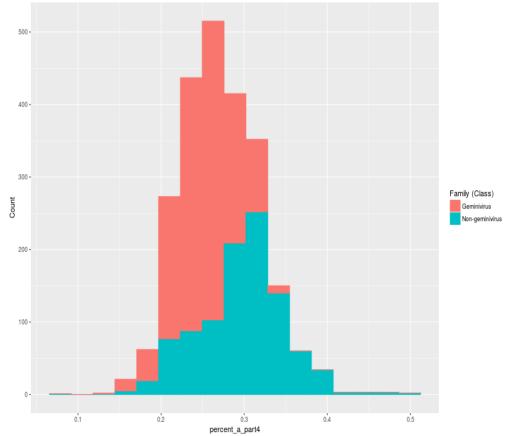


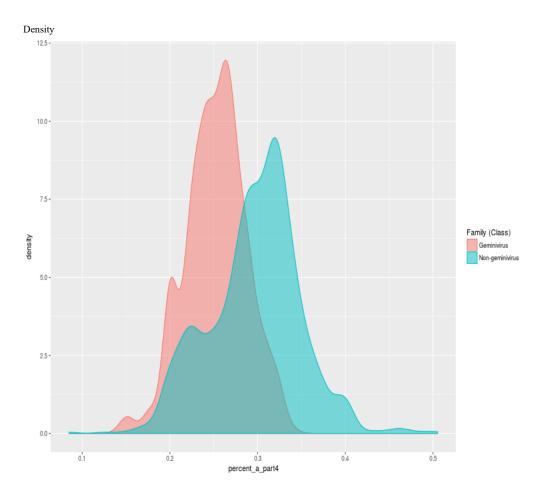


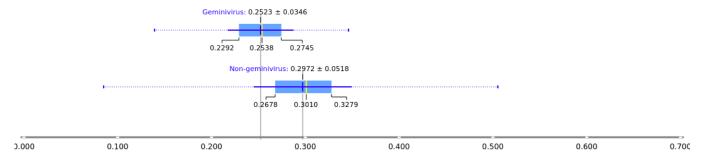




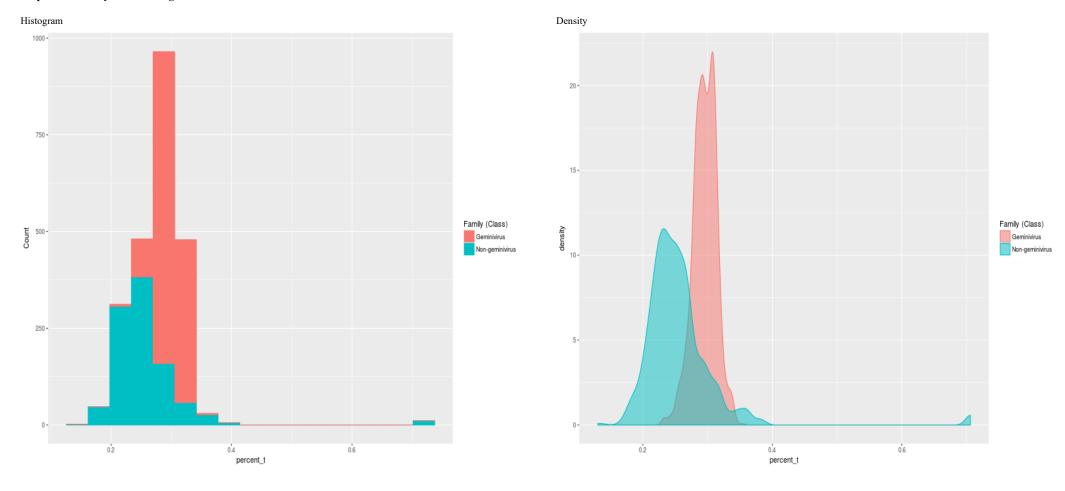


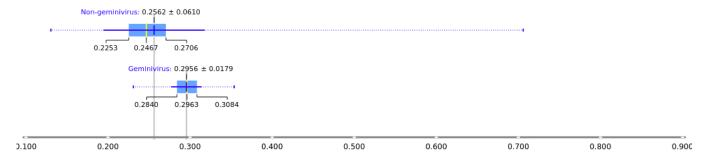




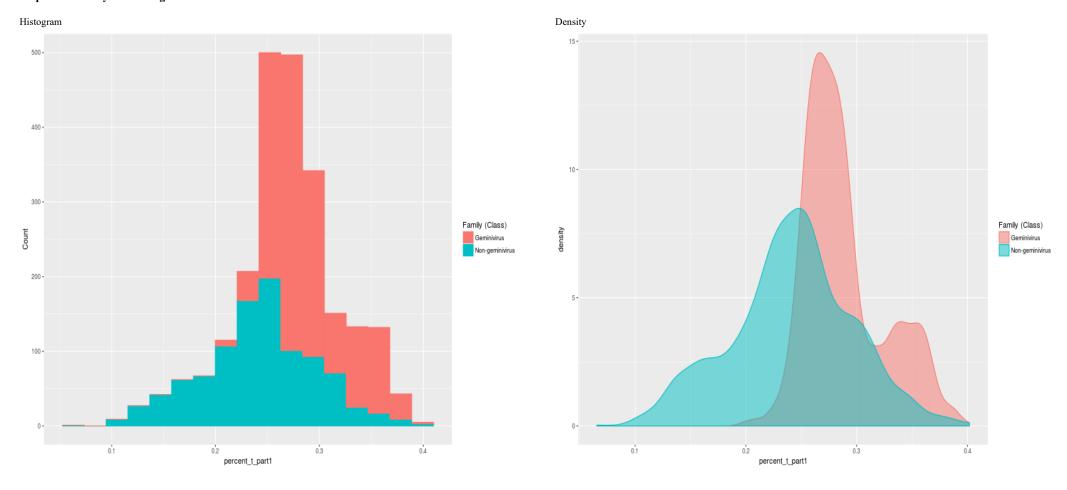


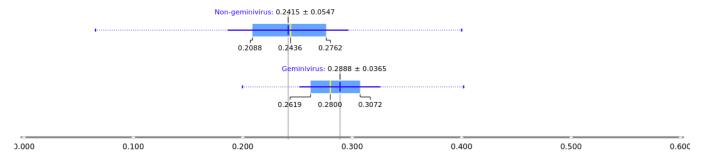
# **Proportion of Thymine in the genome**



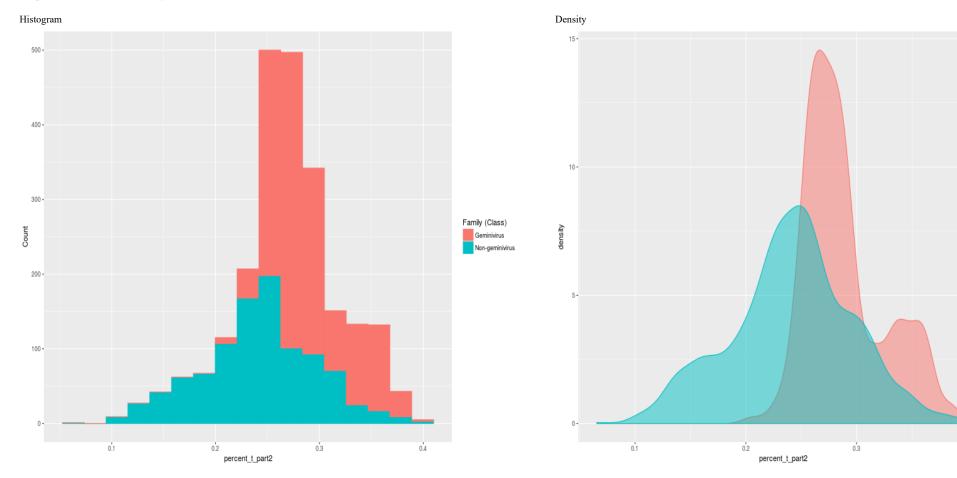


# **Proportion of Thymine in region 1**





## Proportion of Thymine in region 2

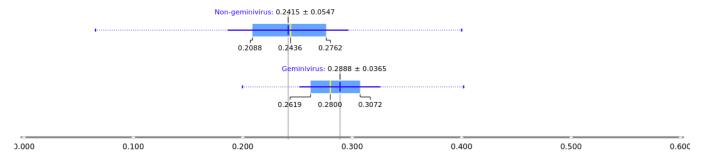


Family (Class)

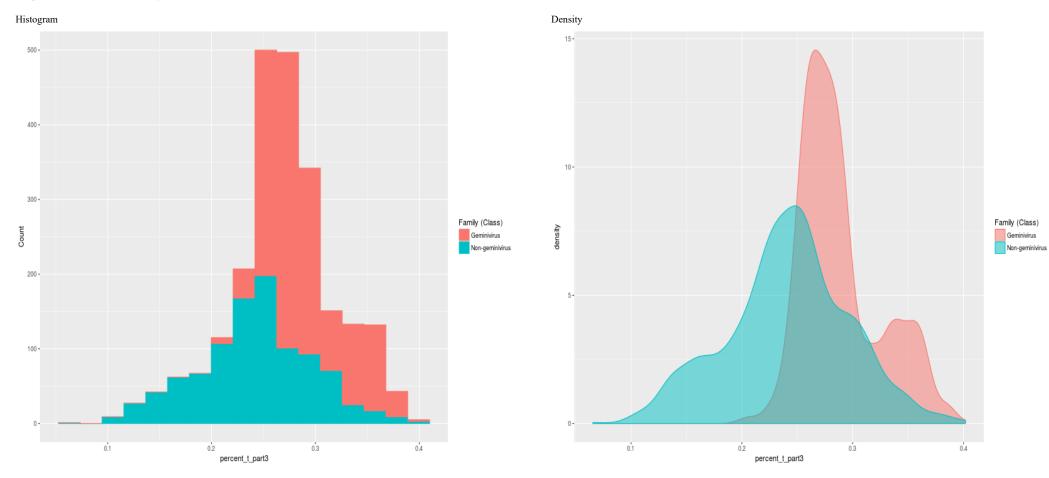
Geminivirus

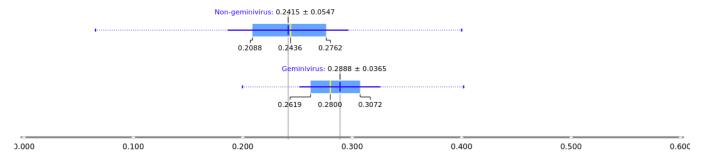
0.4

Non-geminivirus



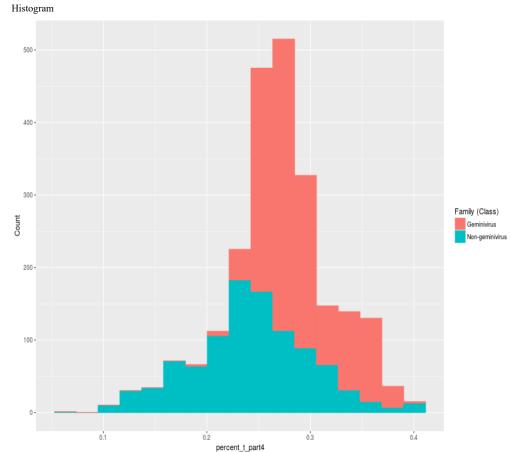
## Proportion of Thymine in region 3

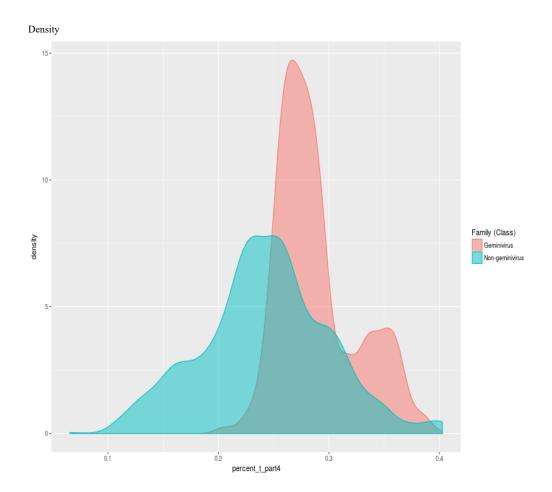


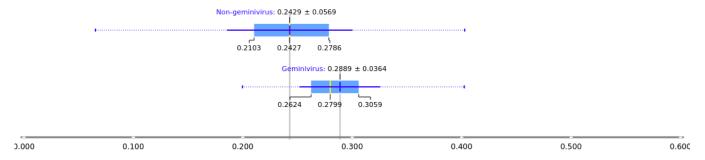


## Proportion of Thymine in region 4

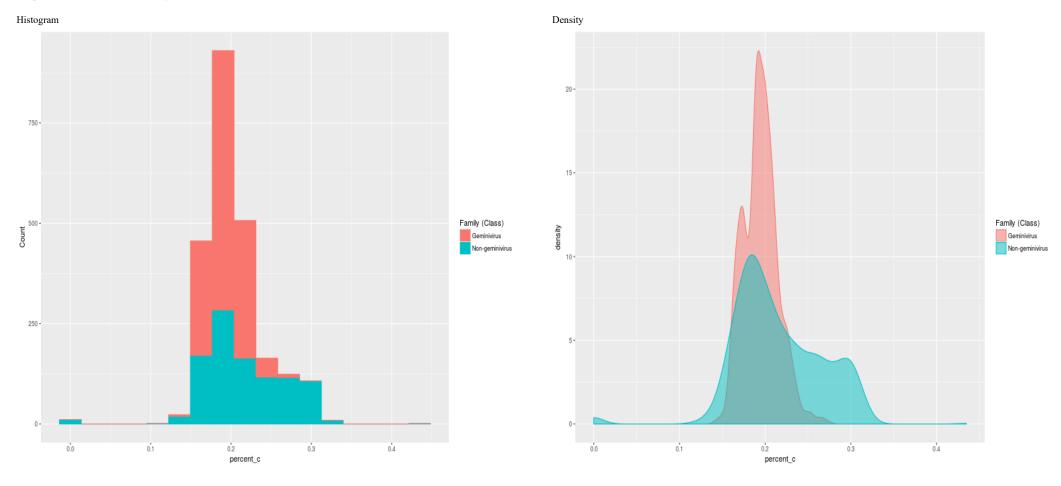


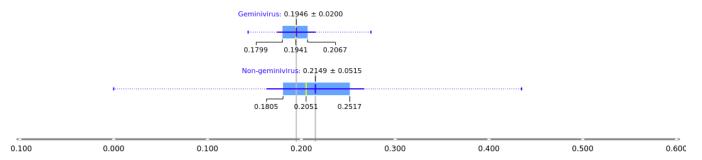




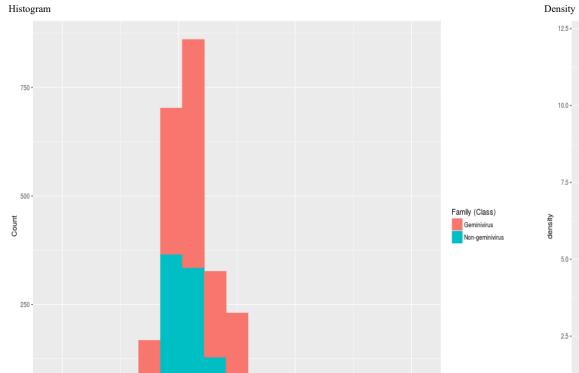


# **Proportion of Cytosine in the genome**





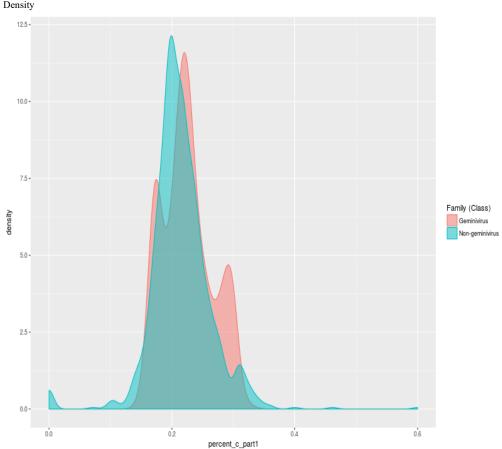
# **Proportion of Cytosine in region 1**

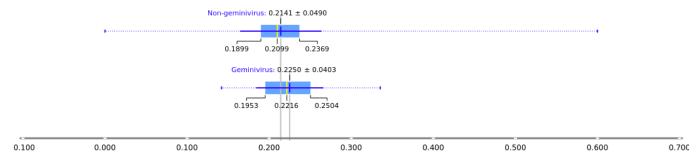


0.4

percent\_c\_part1

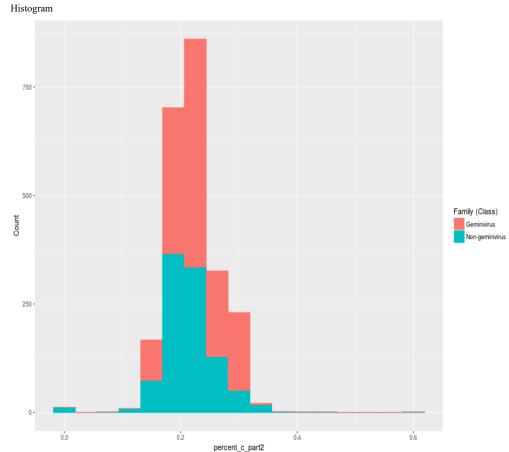
0.2

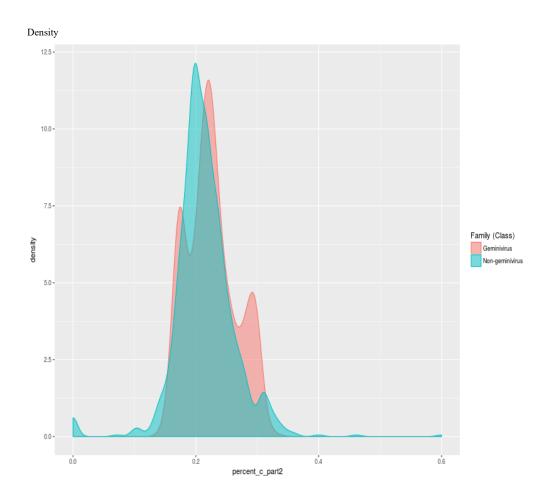




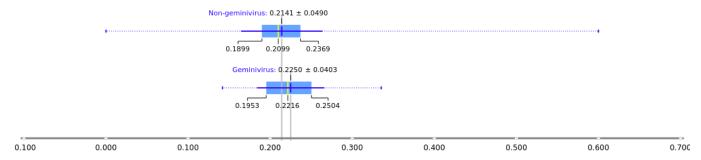
### Proportion of Cytosine in region 2





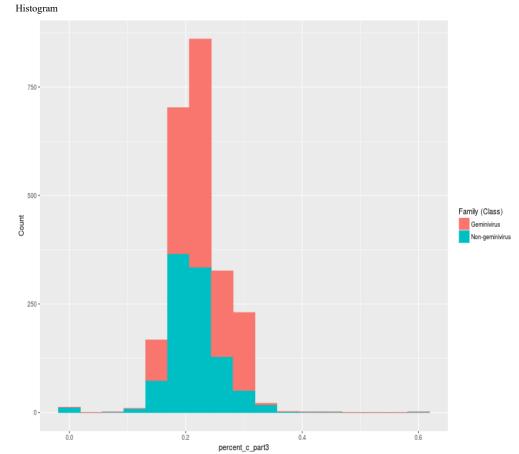


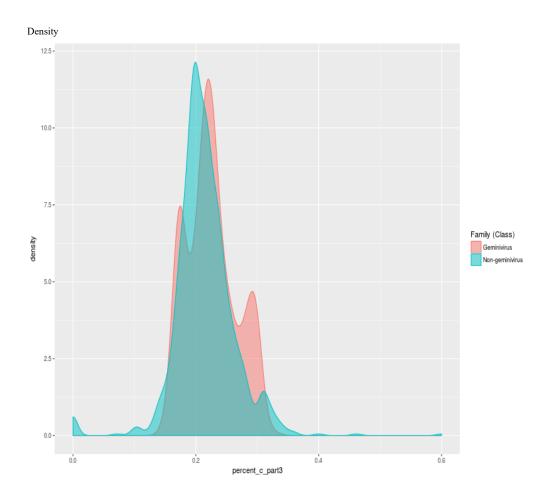
#### Boxplots



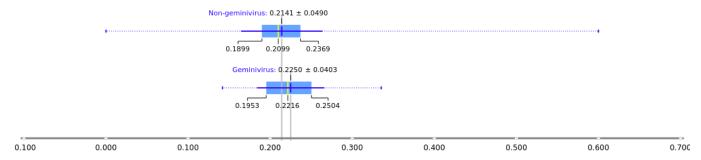
### Proportion of Cytosine in region 3



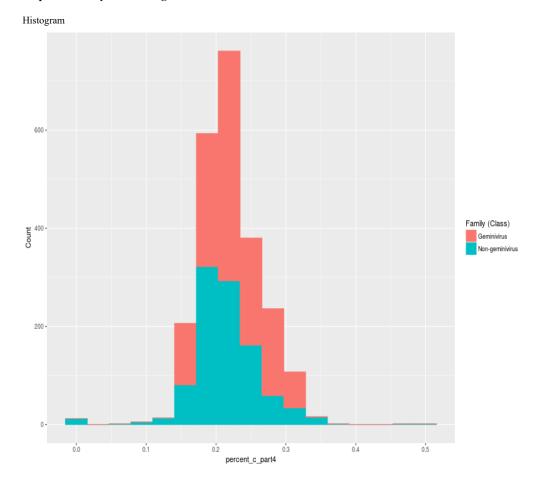


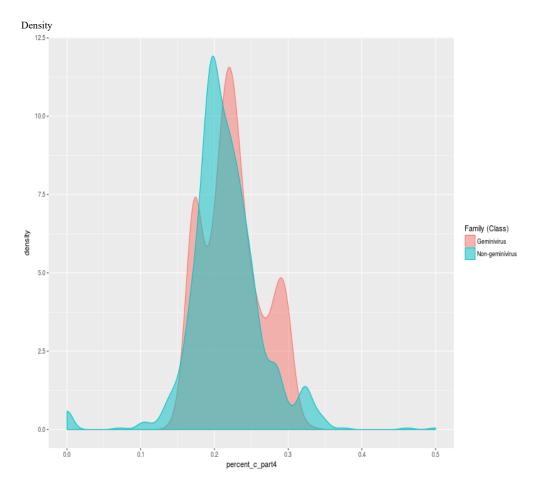


#### Boxplots

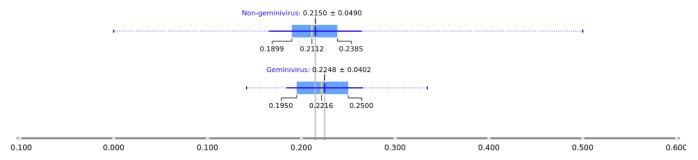


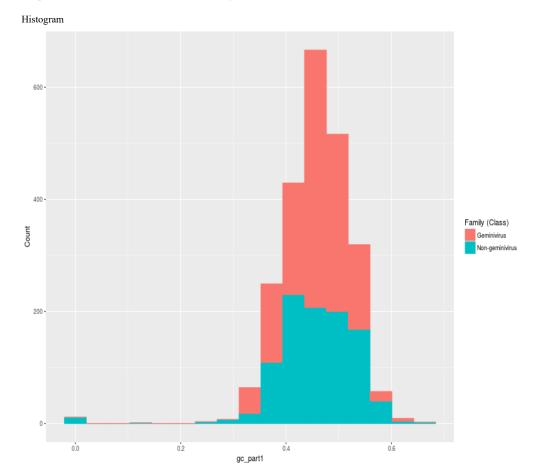
### Proportion of Cytosine in region 4

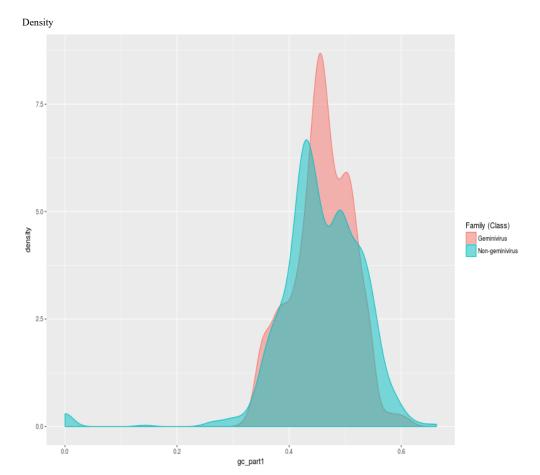




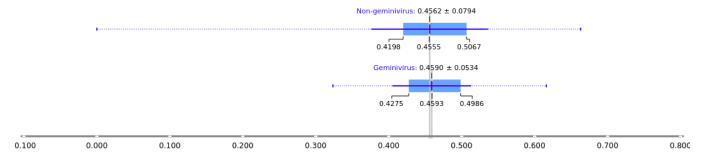
#### Boxplots

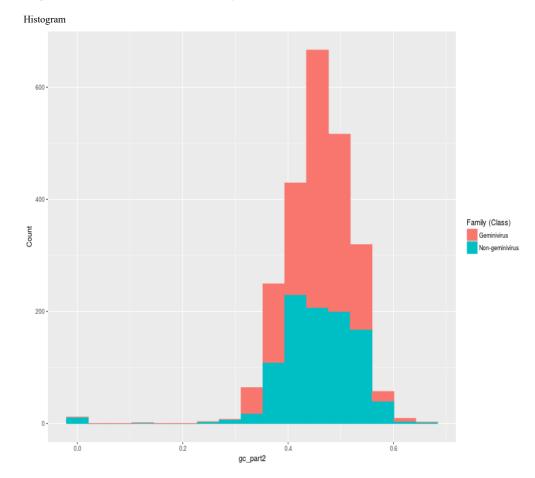


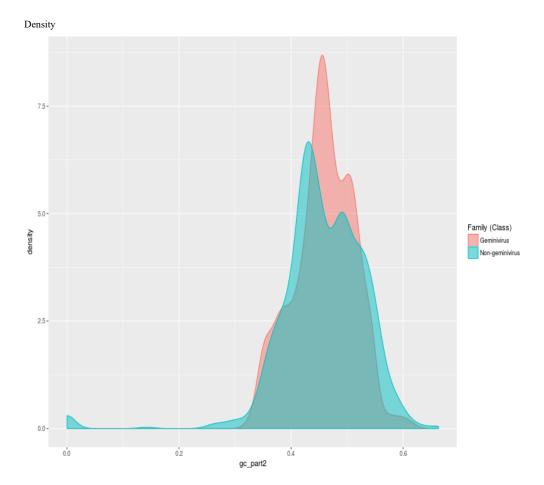




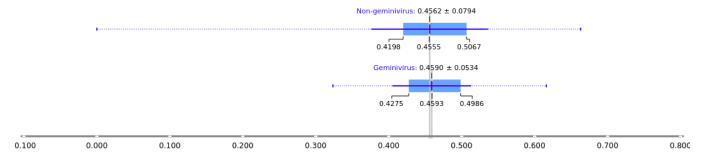


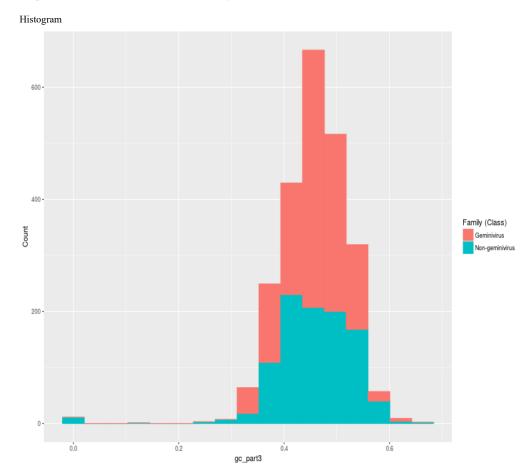


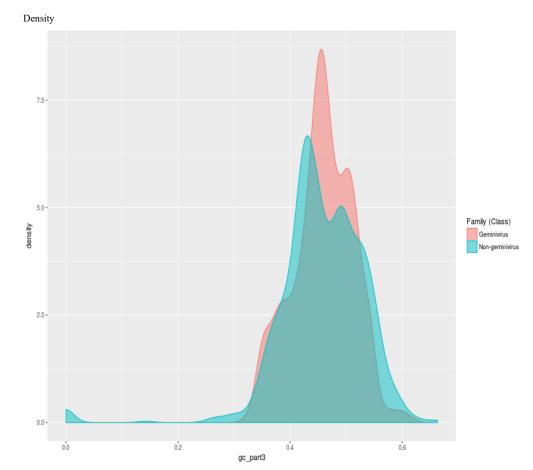




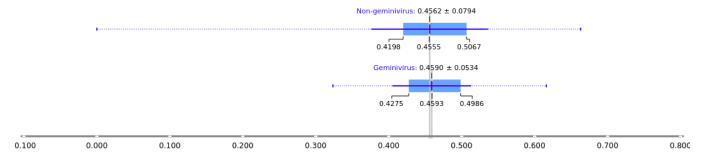


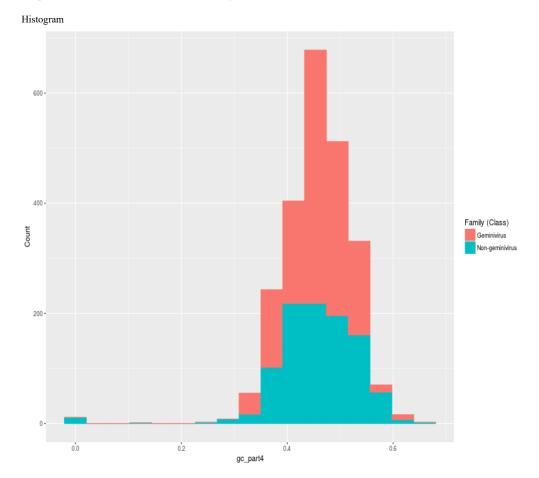


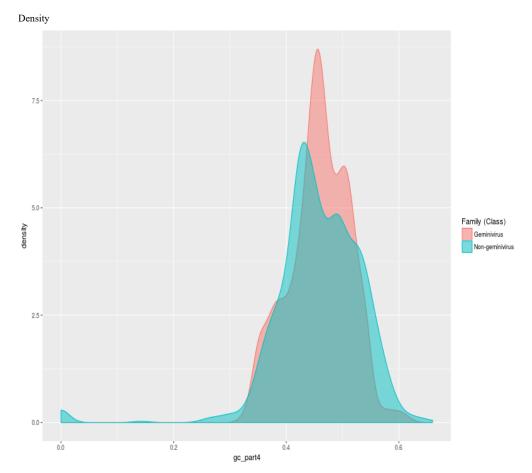




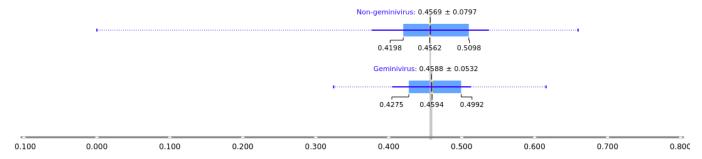








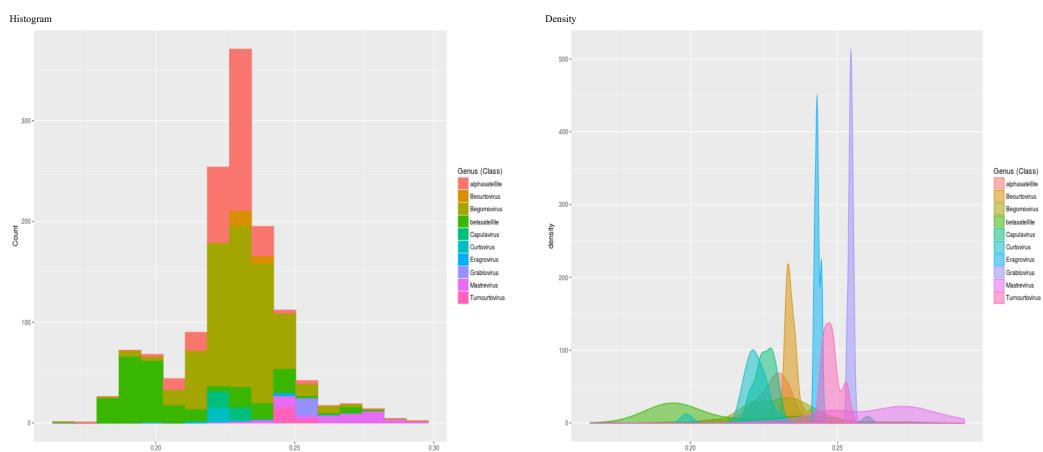




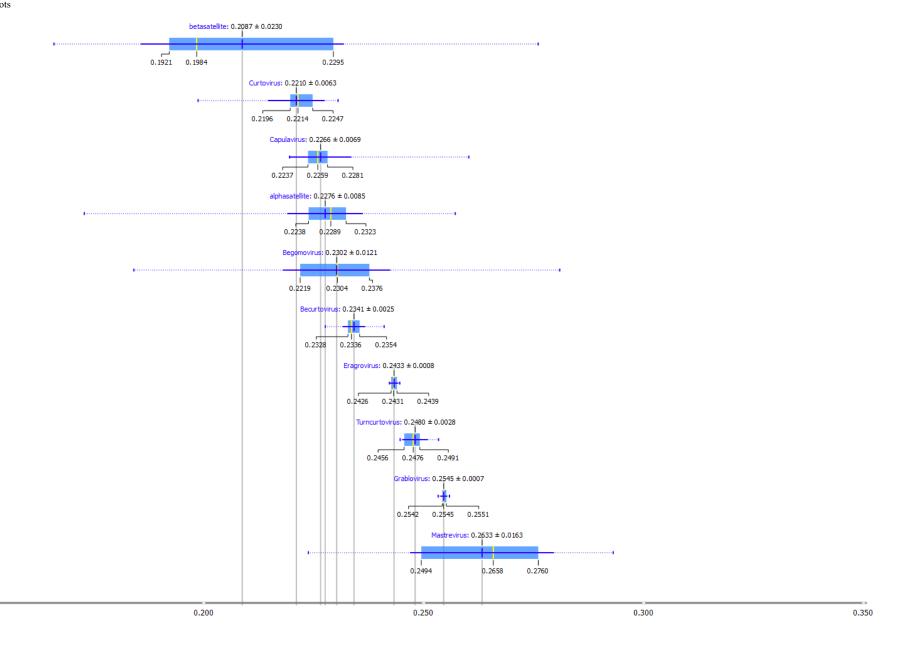
# **Charts of genus attributes**

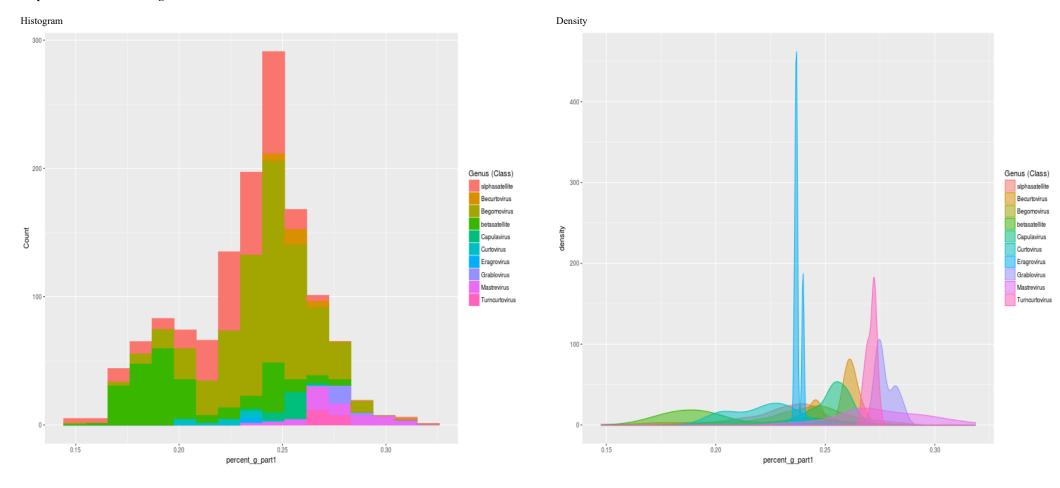
### Proportion of Guanine in the genome

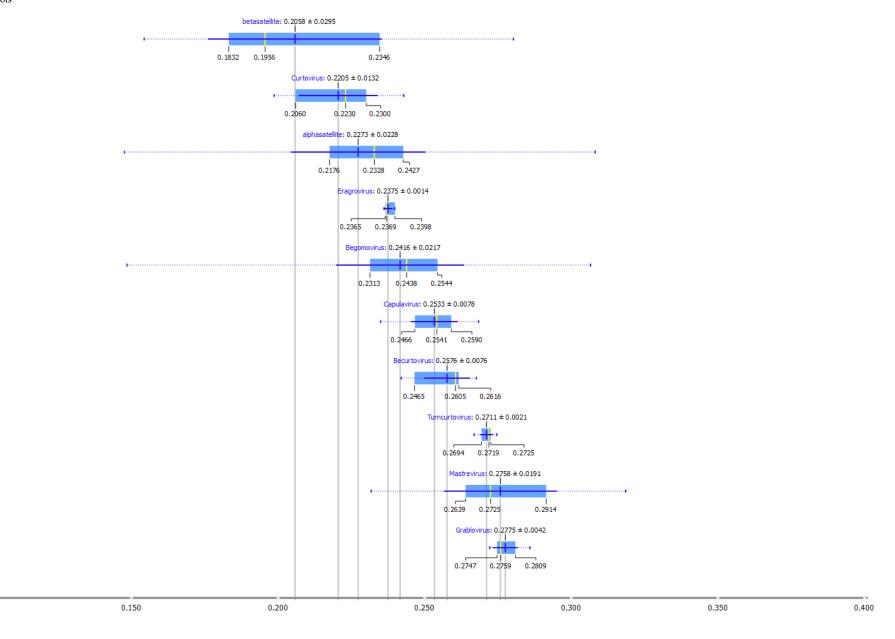
percent\_g

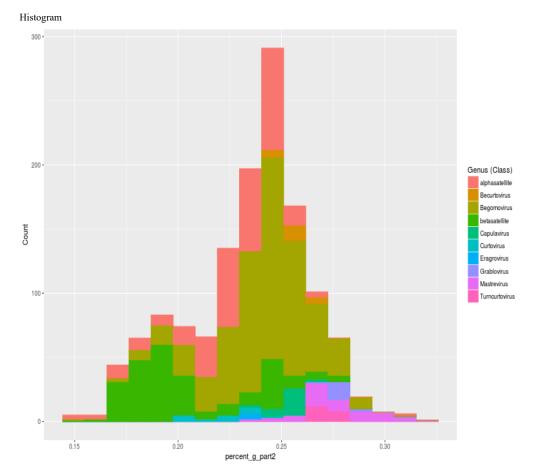


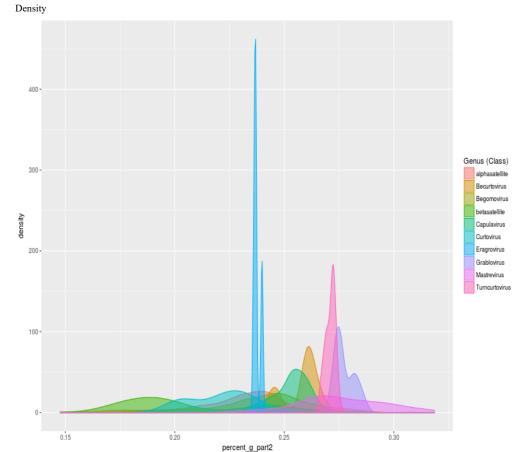
percent\_g

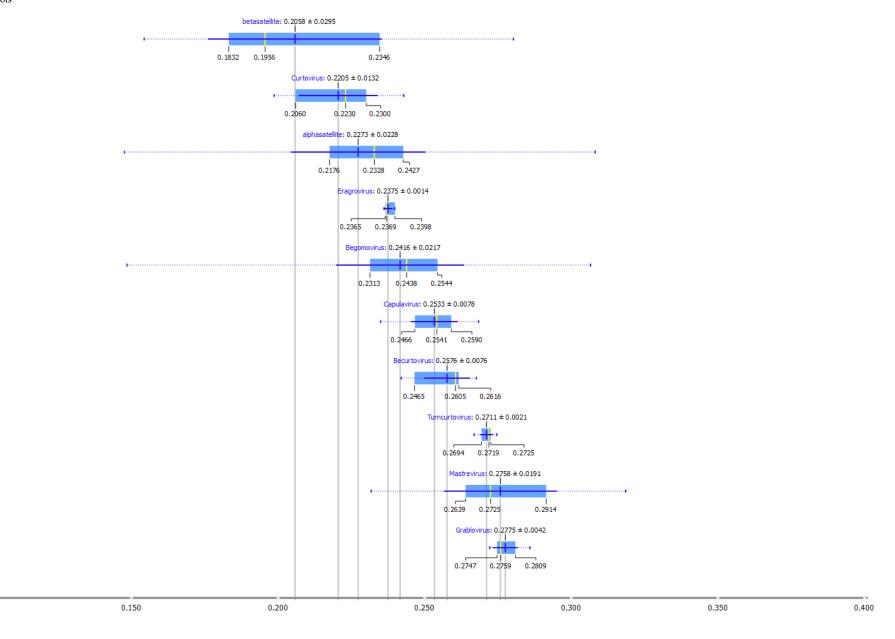


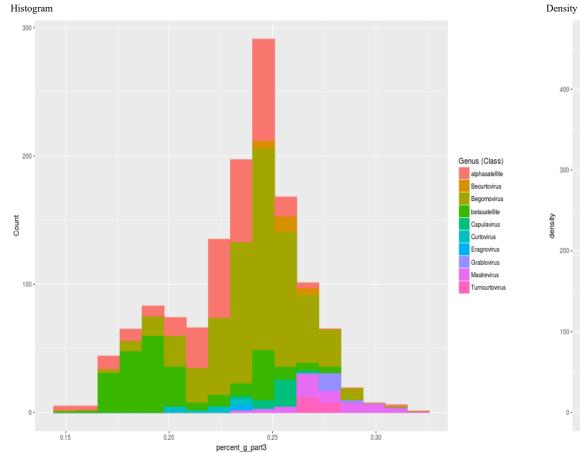


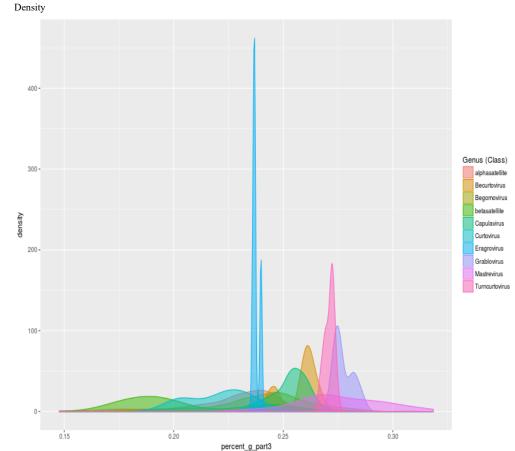


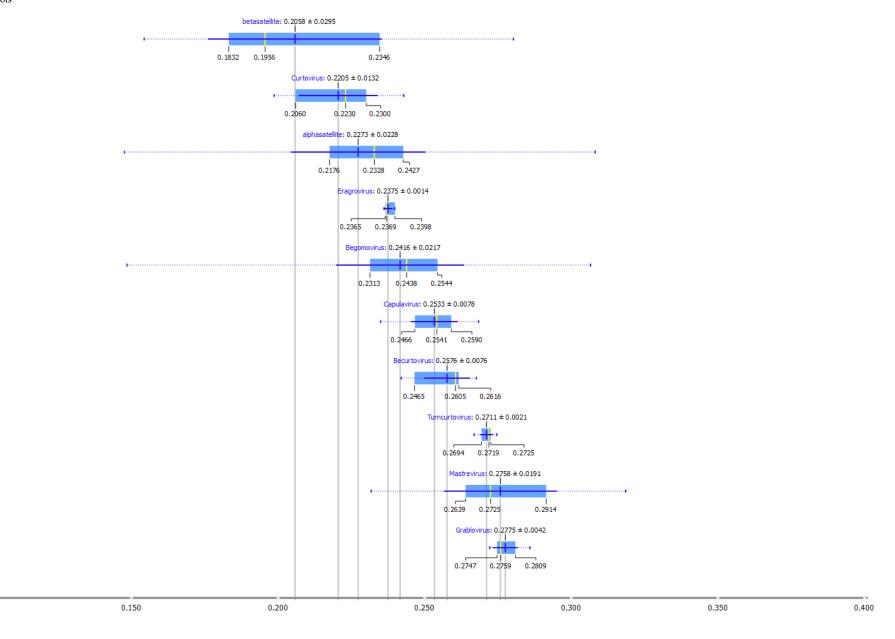


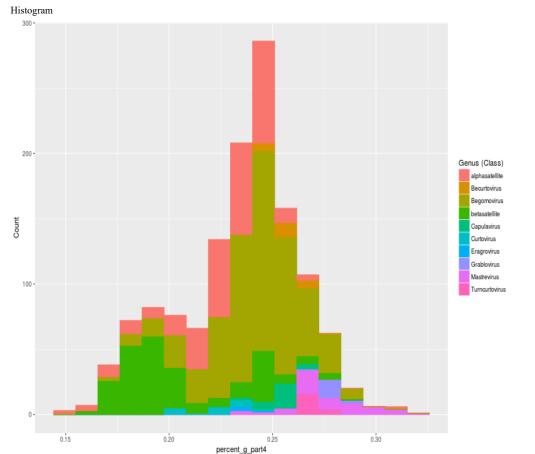


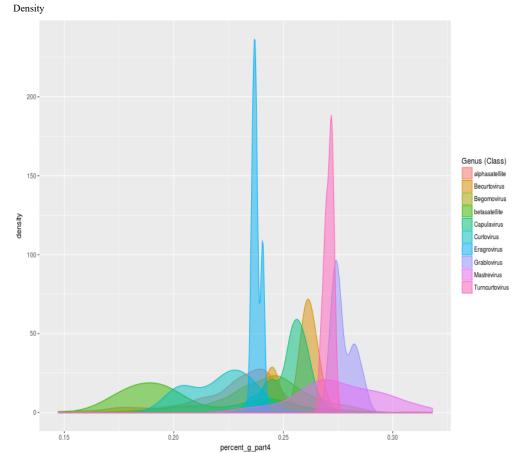


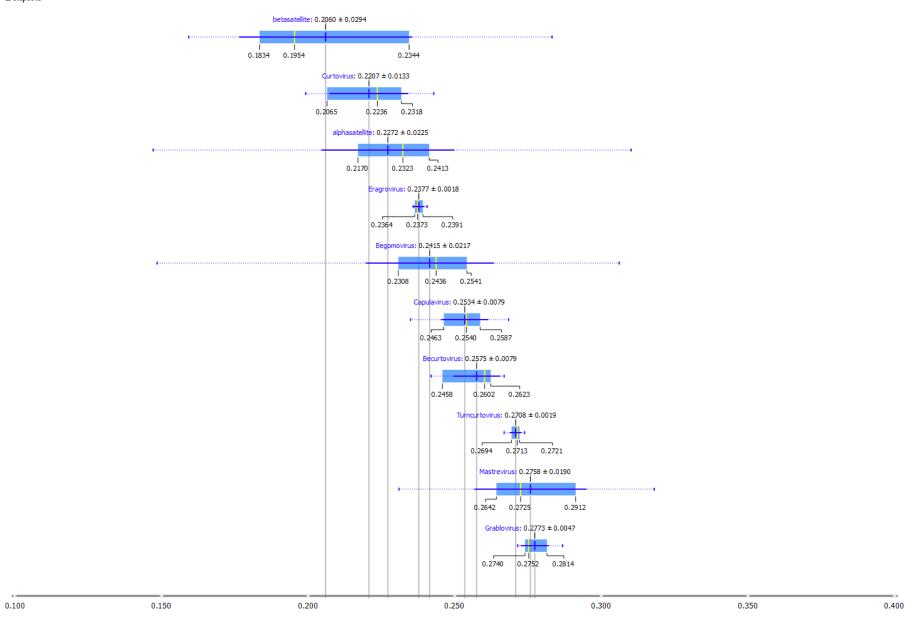






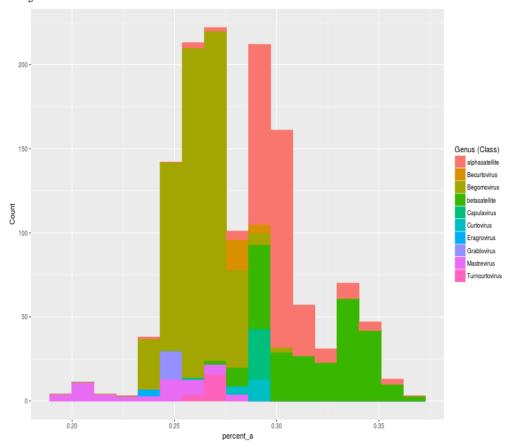




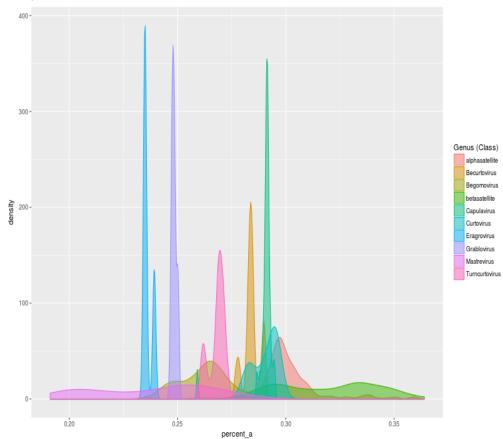


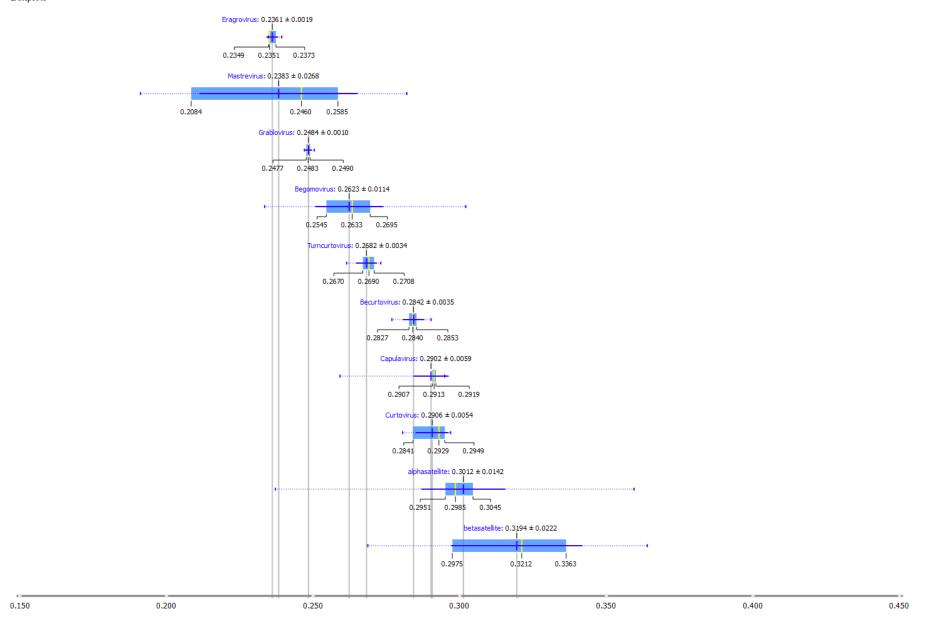
# Proportion of Adenine in the genome

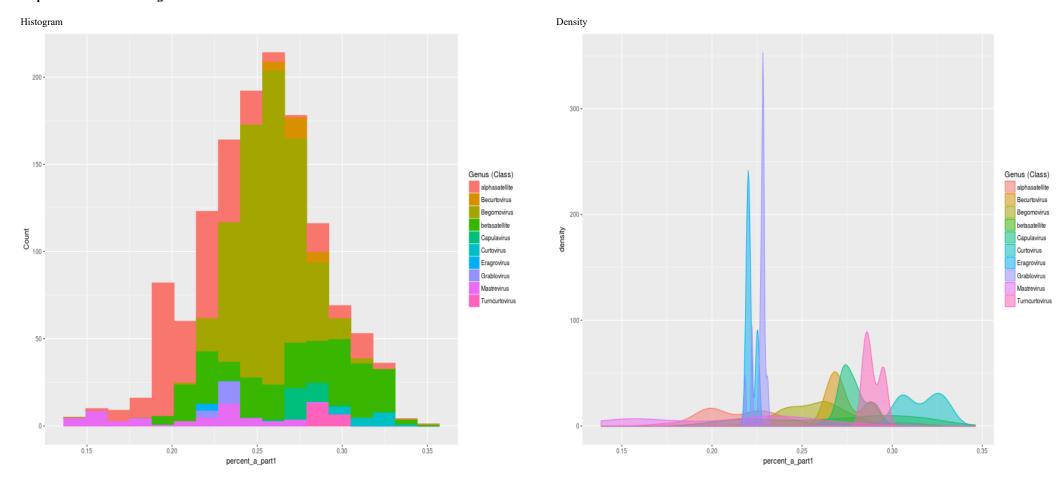


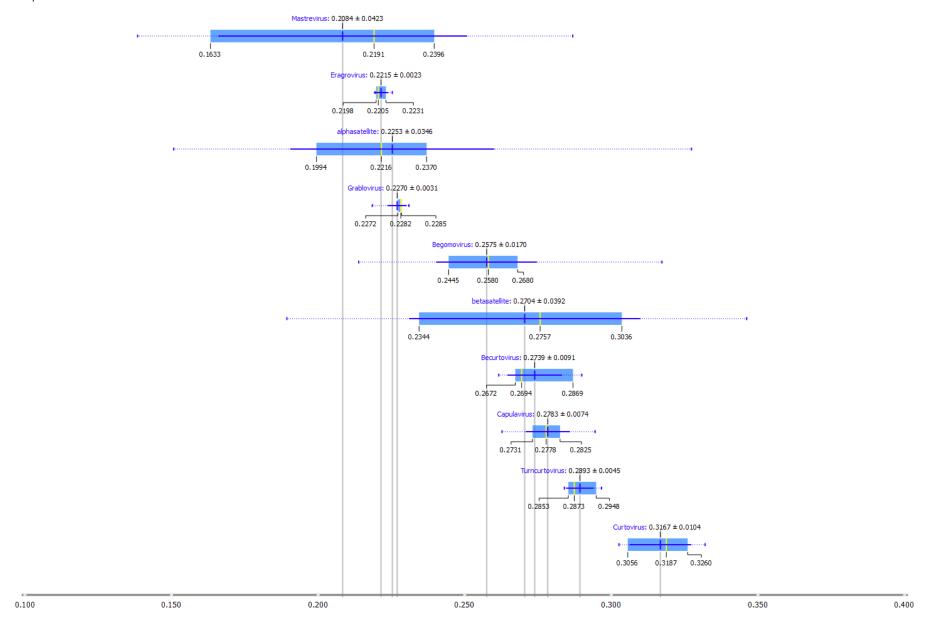


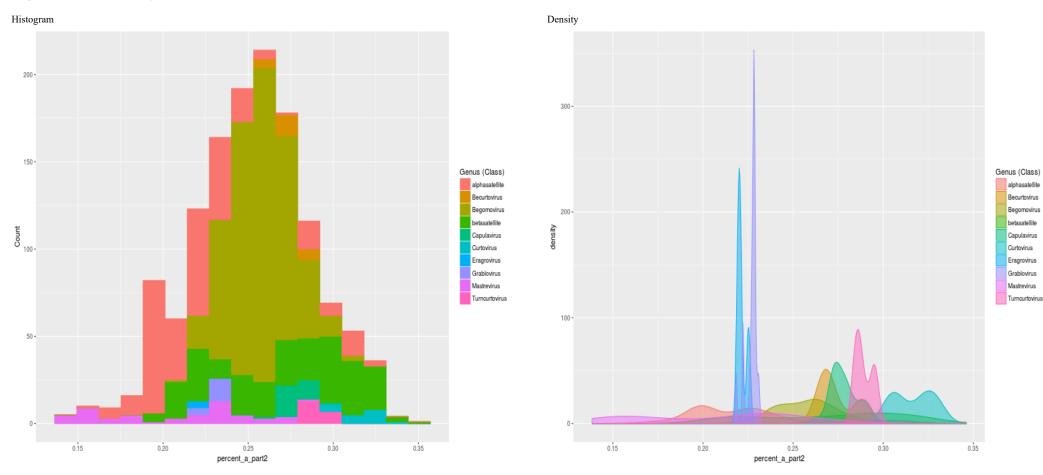
#### Density











alphasatellite

Becurtovirus

Begomovirus

betasatellite

Capulavirus

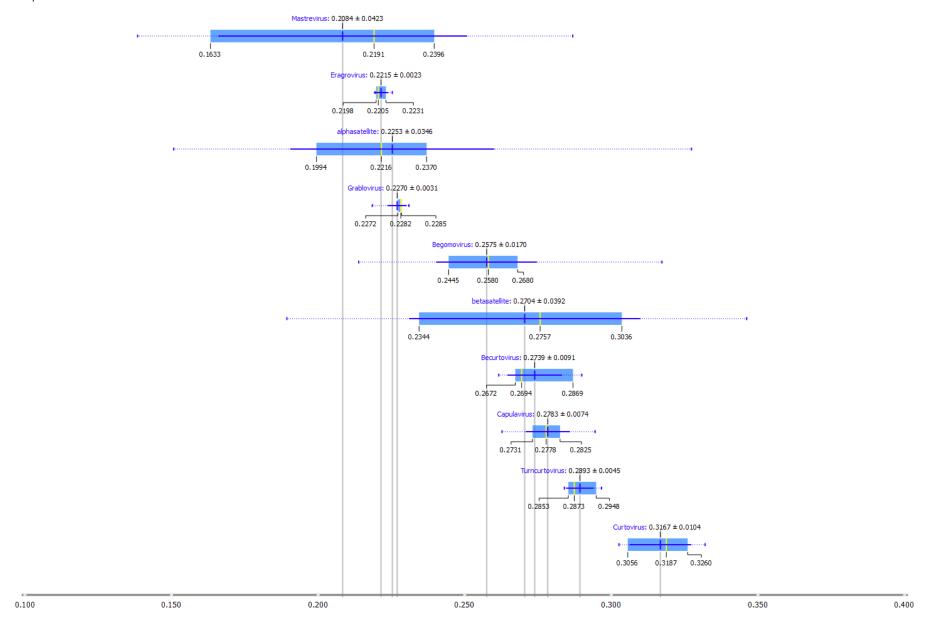
Curtovirus

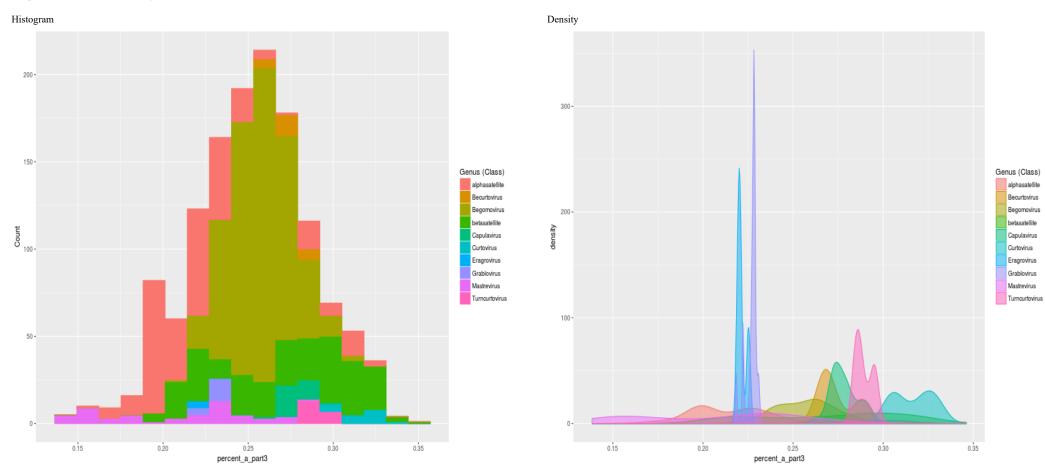
Eragrovirus

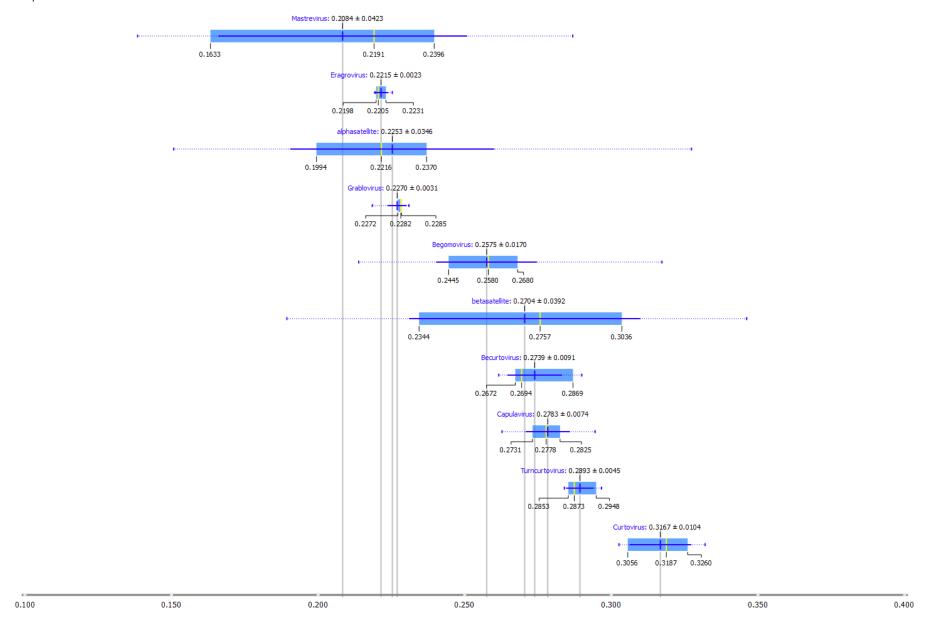
Grablovirus

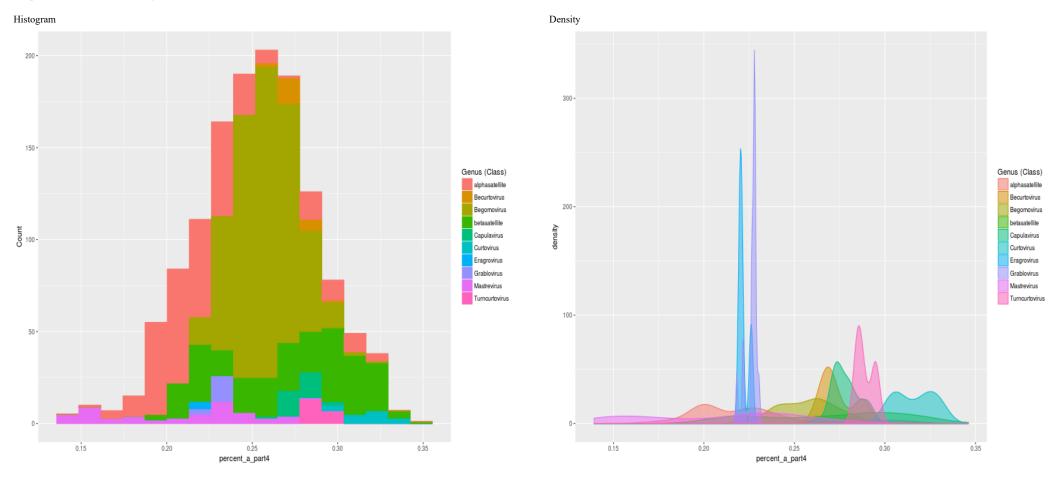
Mastrevirus

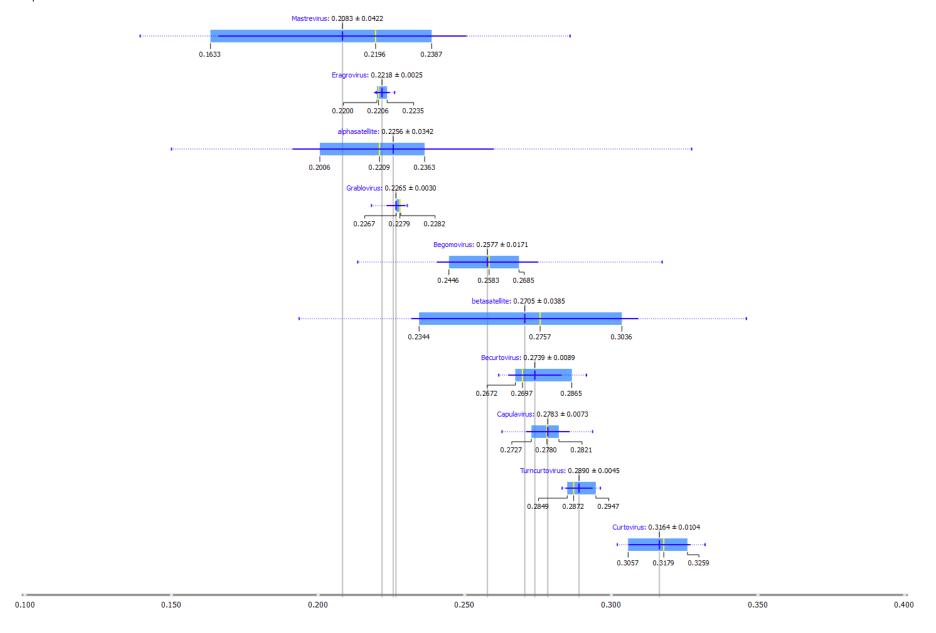
Turncurtovirus











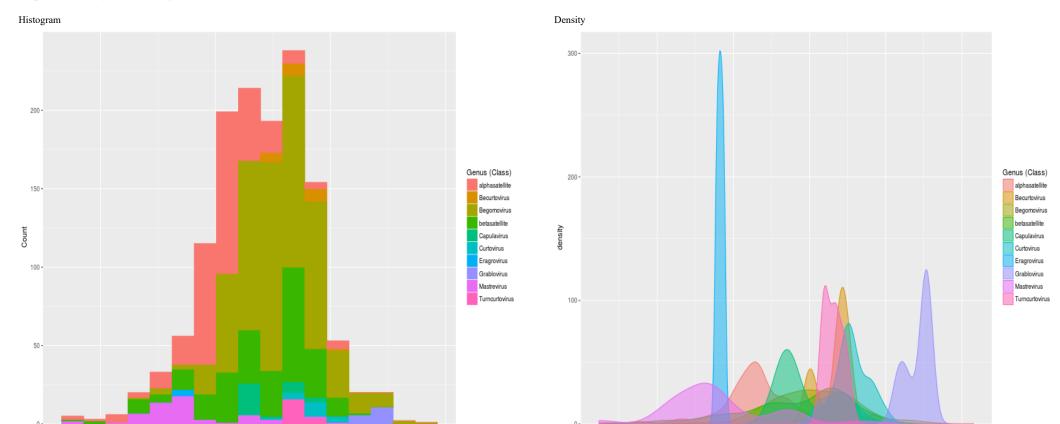
### Proportion of Thymine in the genome

0.24

0.28

percent\_t

0.32



0.225

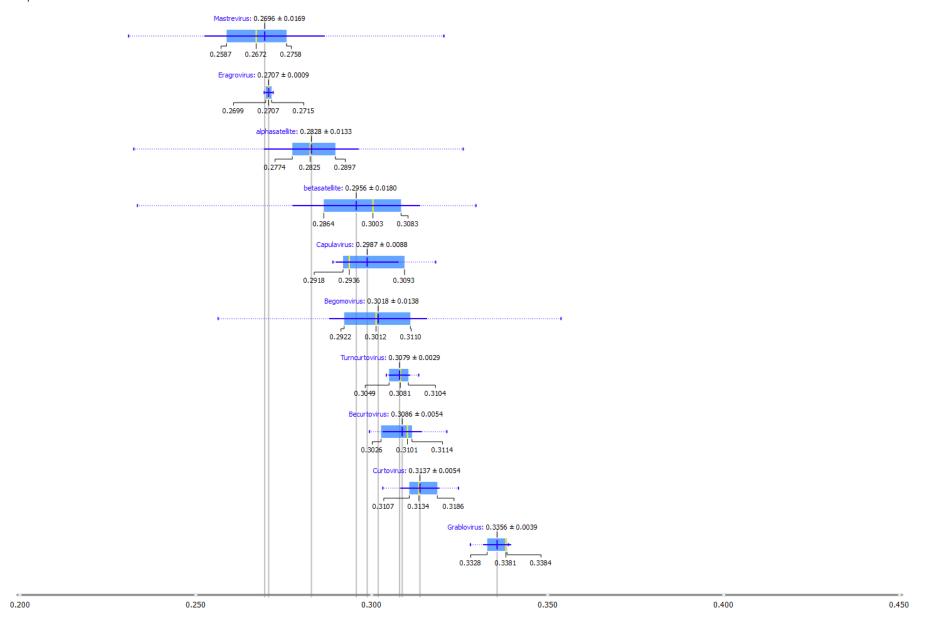
0.250

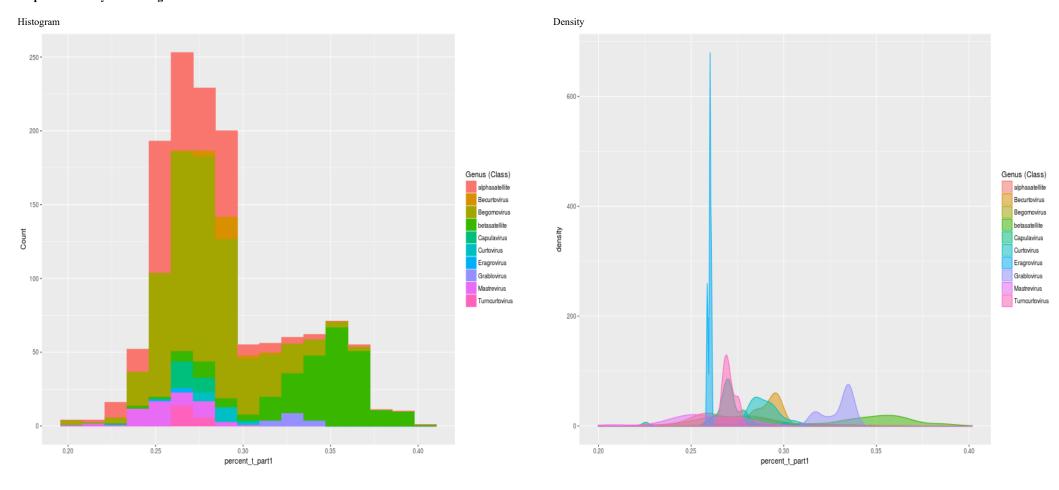
0.300

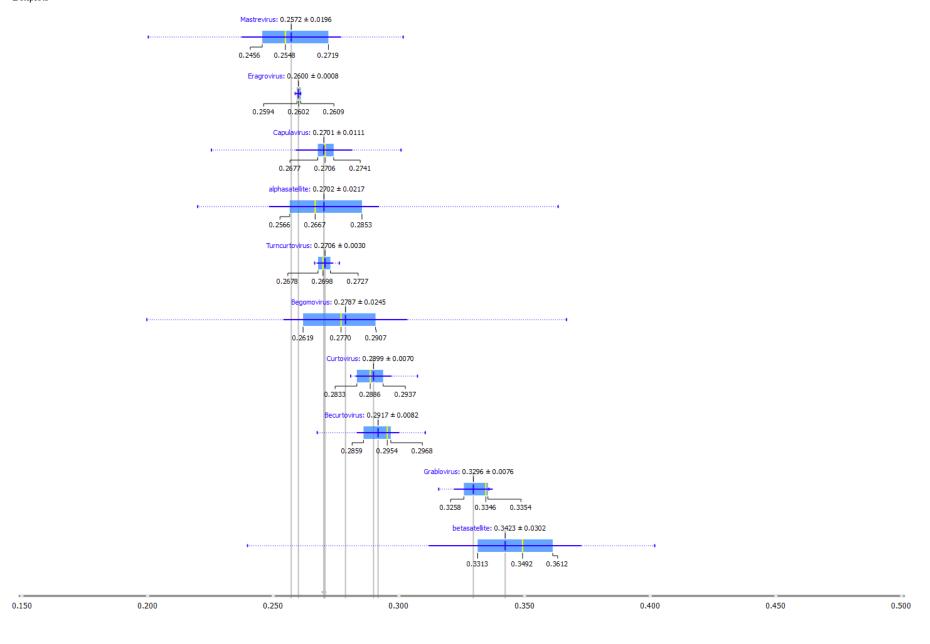
percent\_t

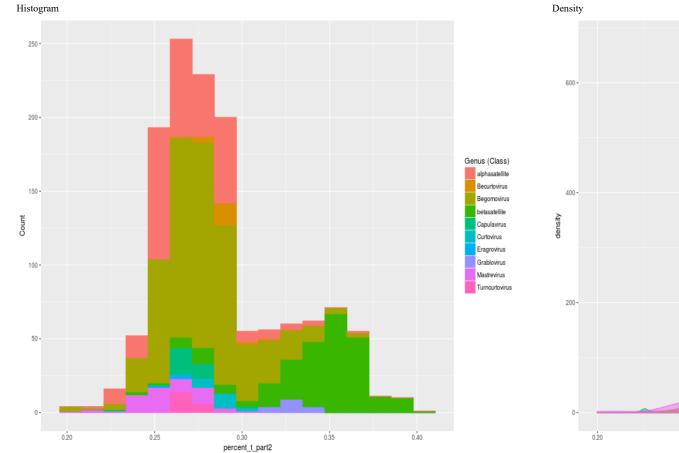
0.325

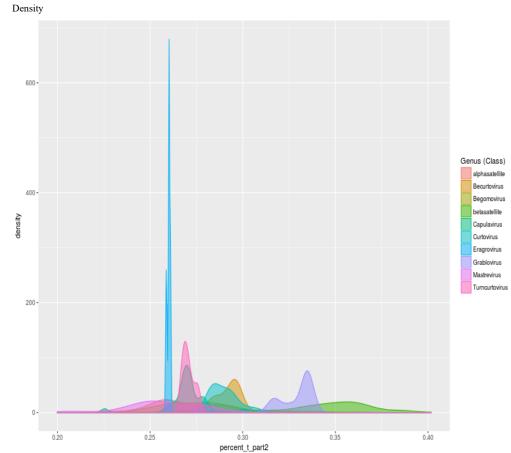
0.350

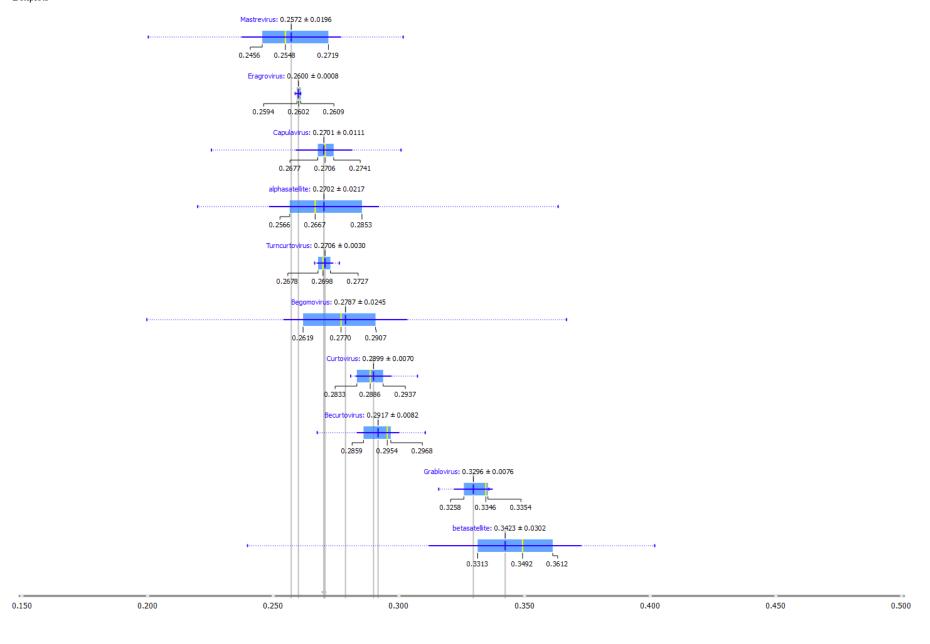


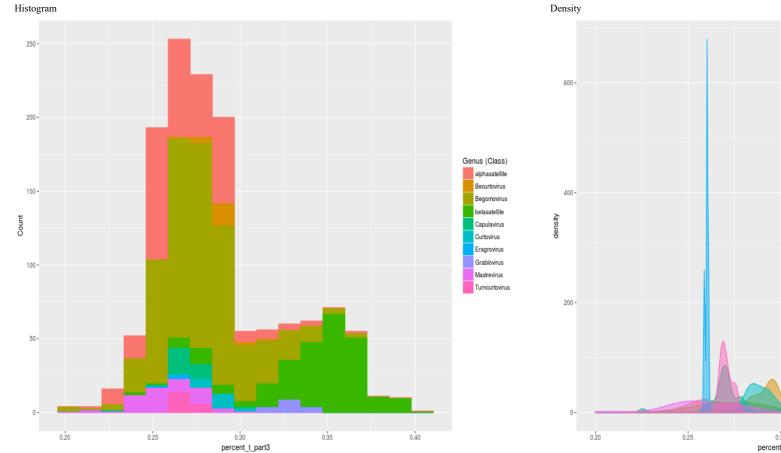


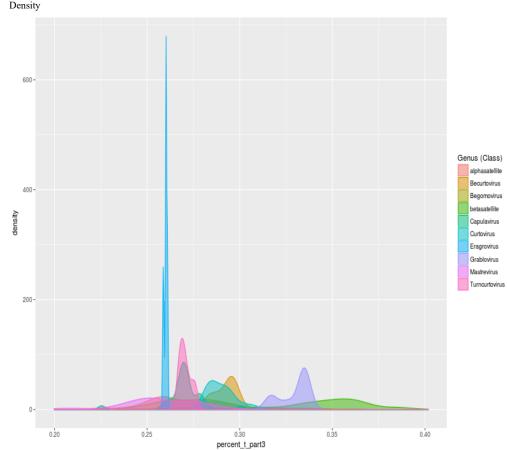


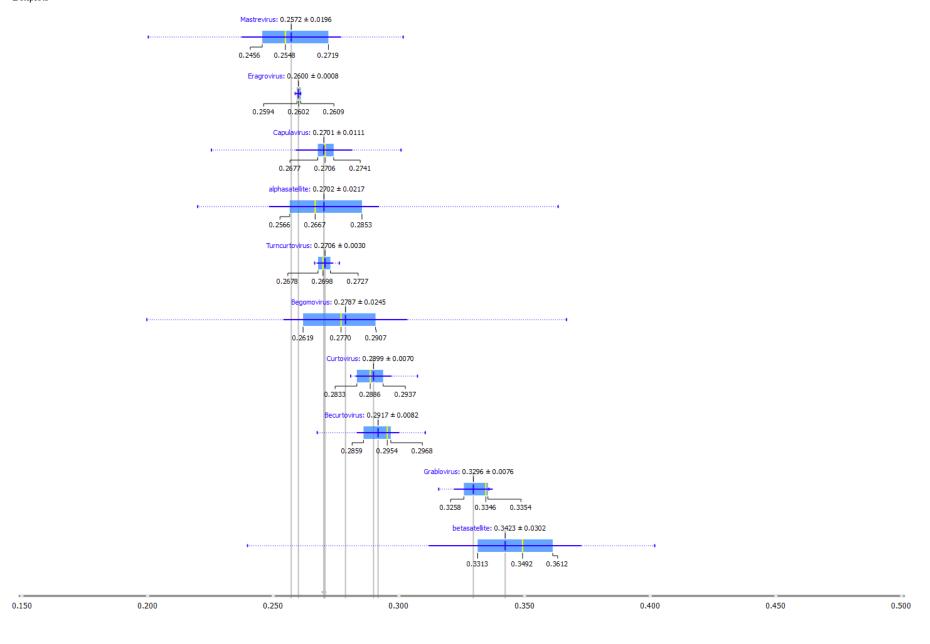


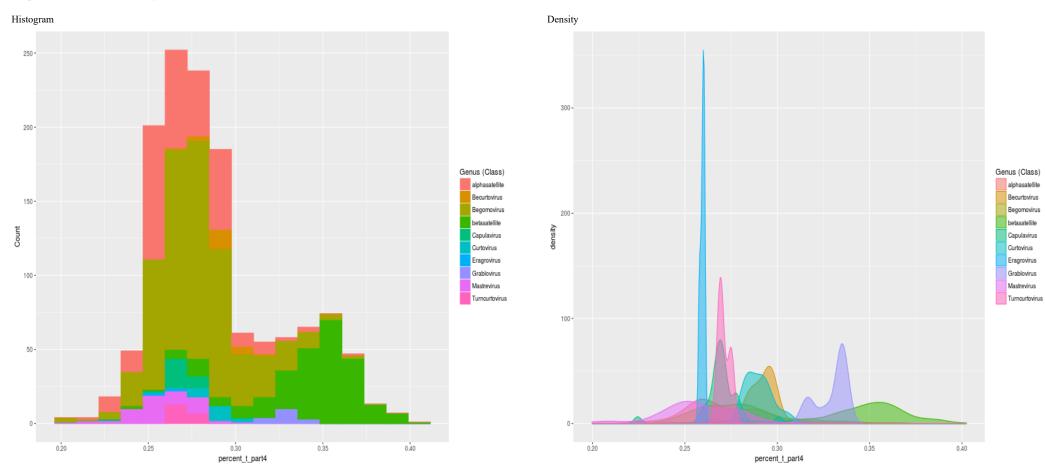


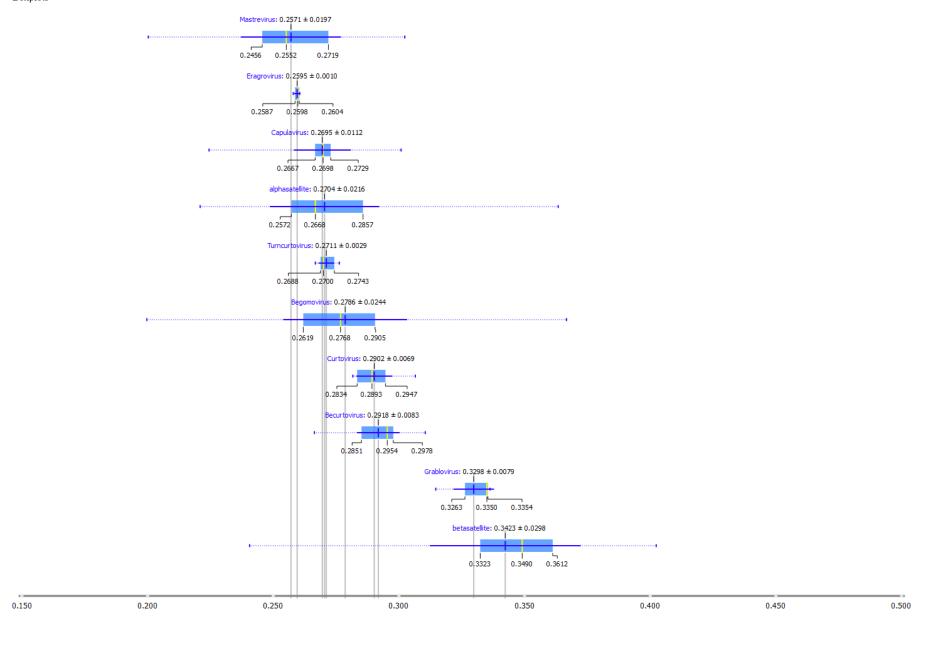






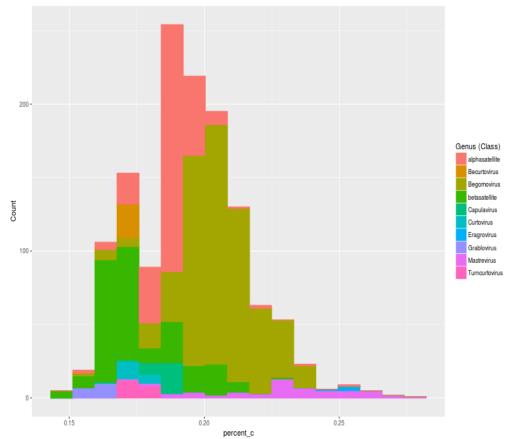


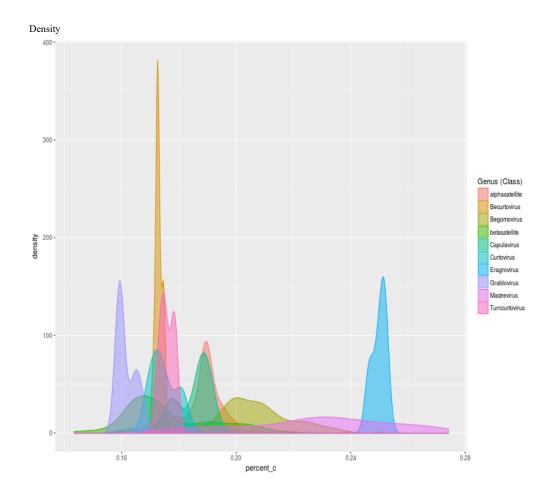


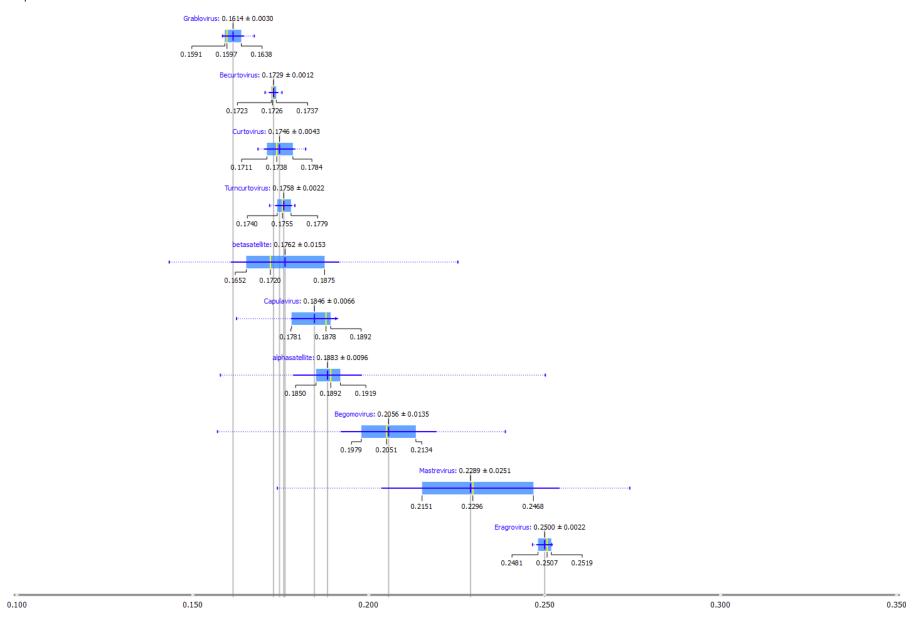


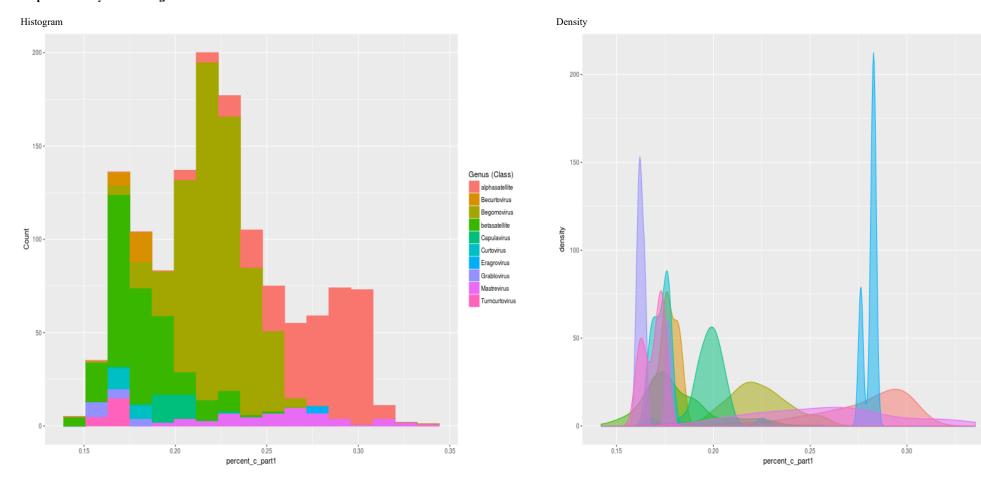
#### Proportion of Cytosine in the genome











Genus (Class)

alphasatellite

Becurtovirus

Begomovirus

betasatellite

Capulavirus

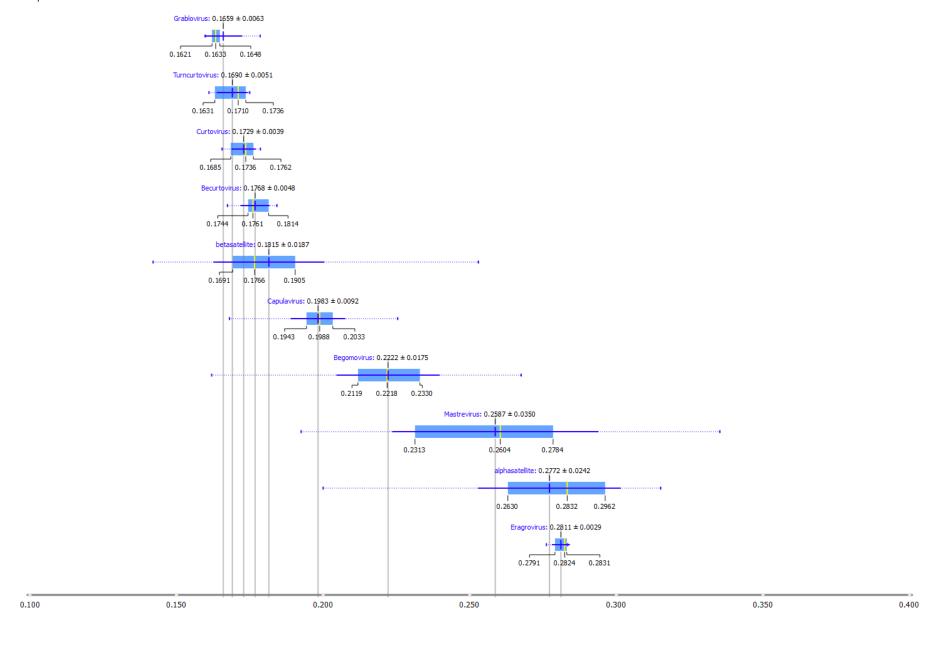
Curtovirus

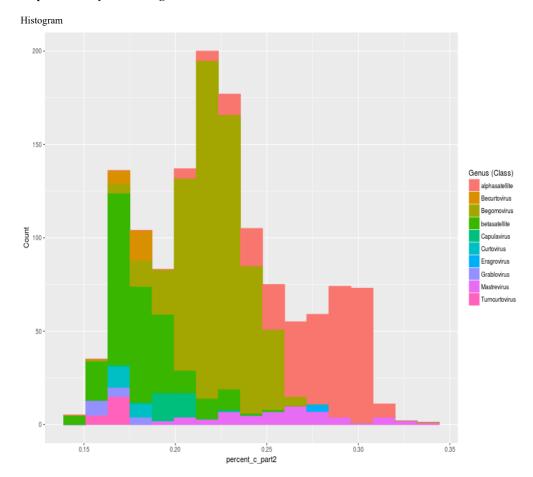
Eragrovirus

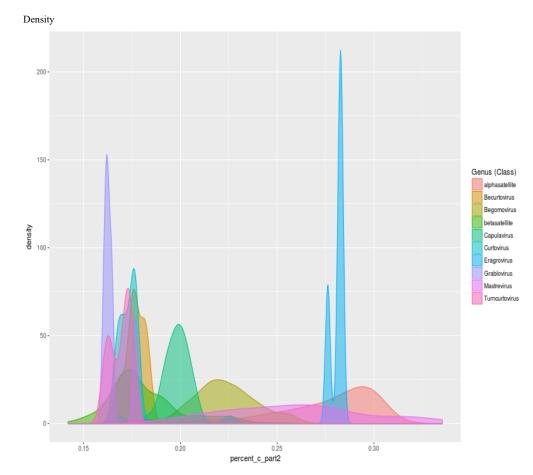
Grablovirus

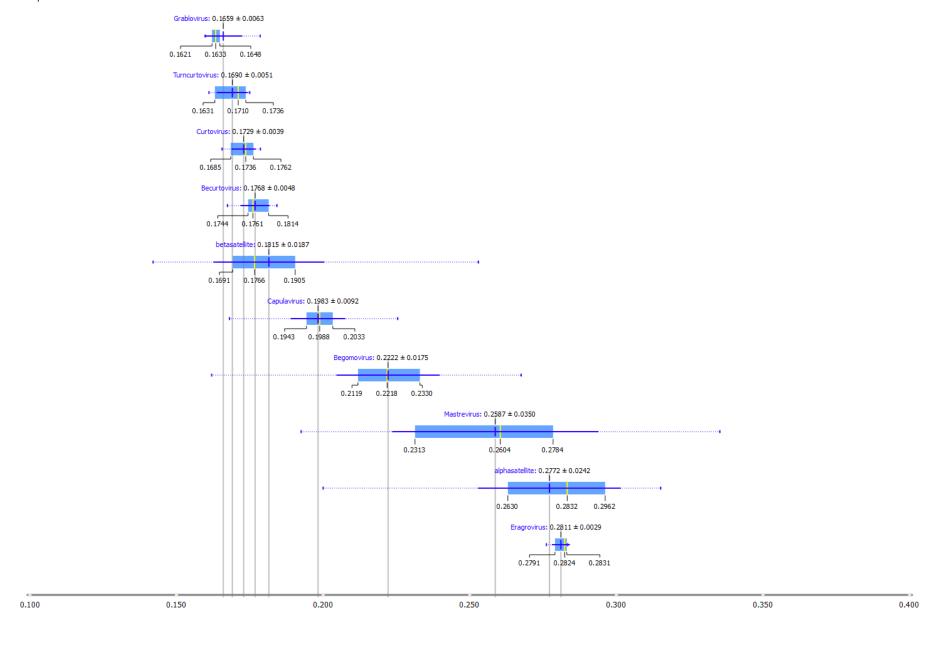
Mastrevirus

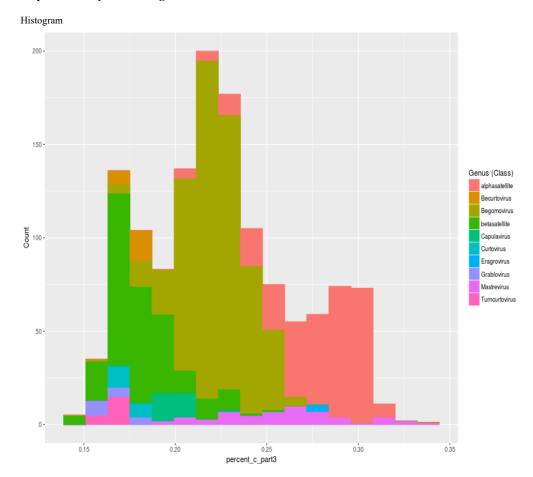
Turncurtovirus

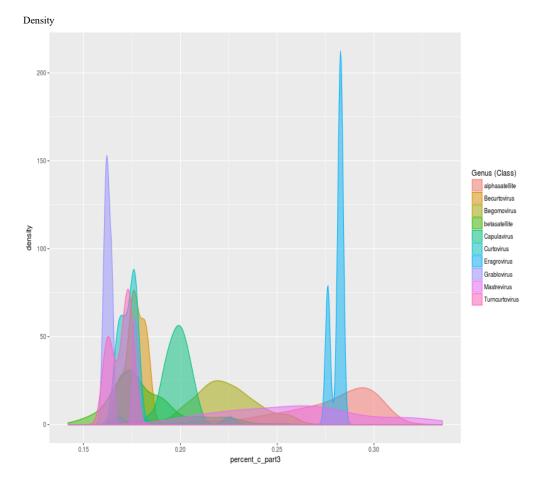


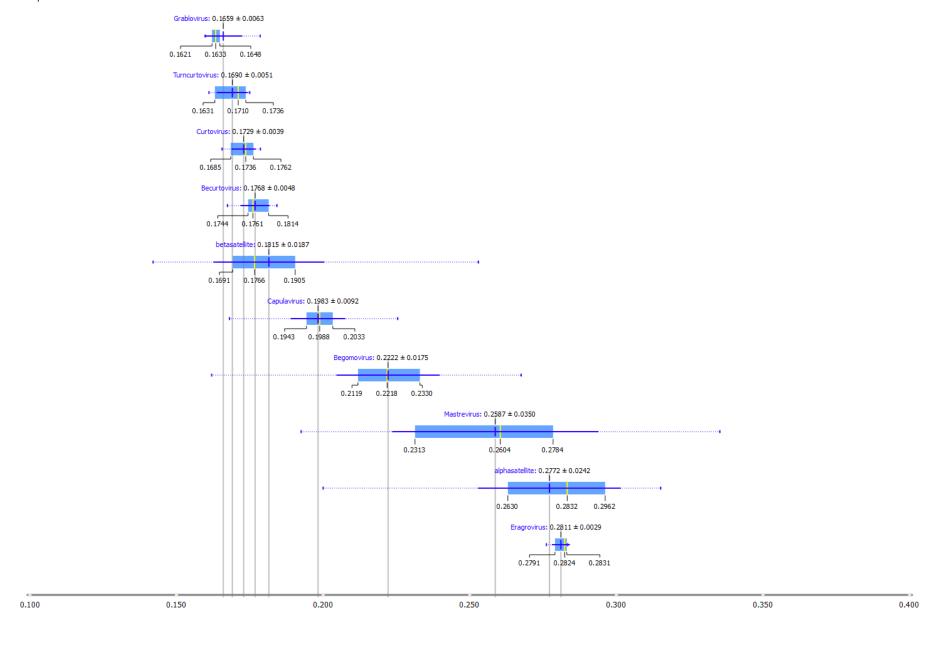


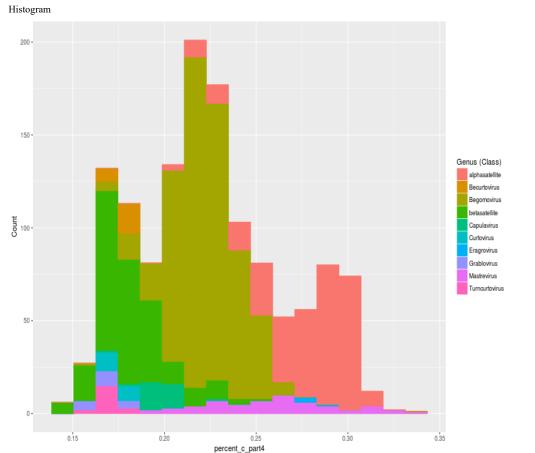


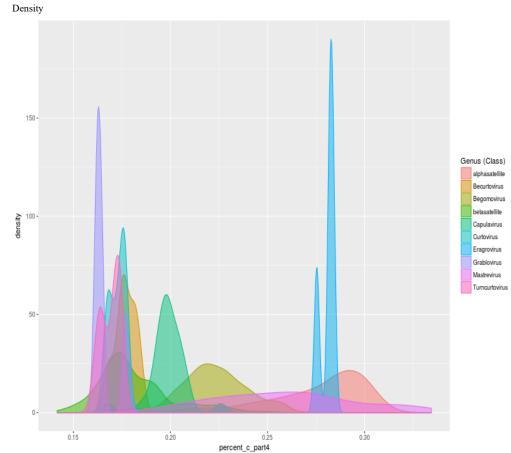


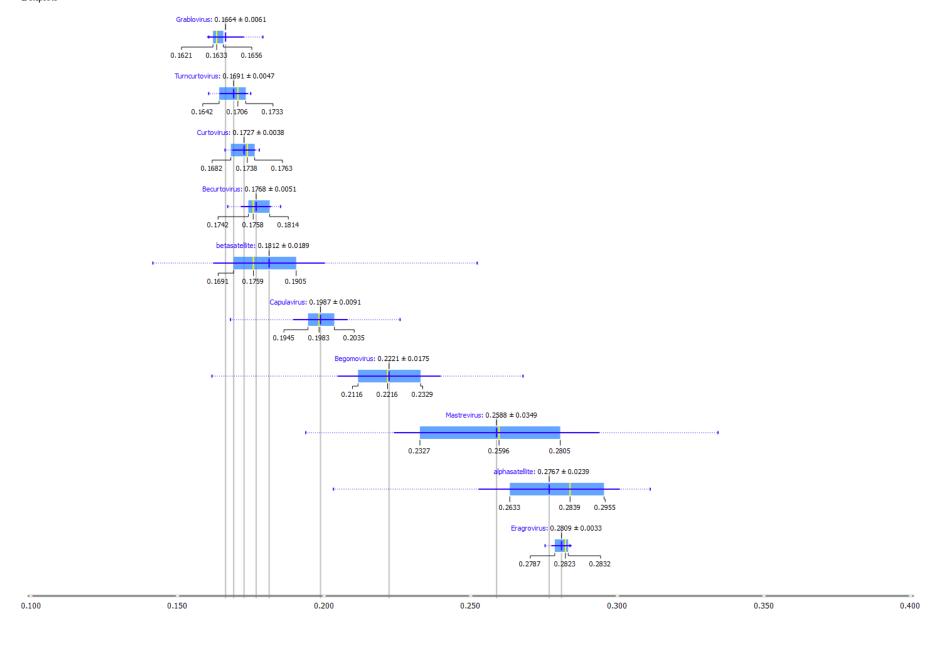


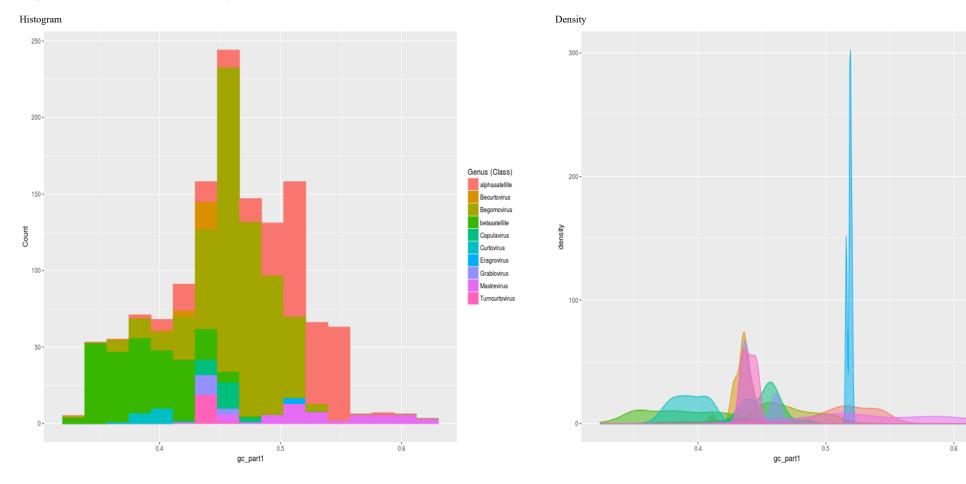












Genus (Class)

alphasatellite

Becurtovirus

Begomovirus

betasatellite

Capulavirus

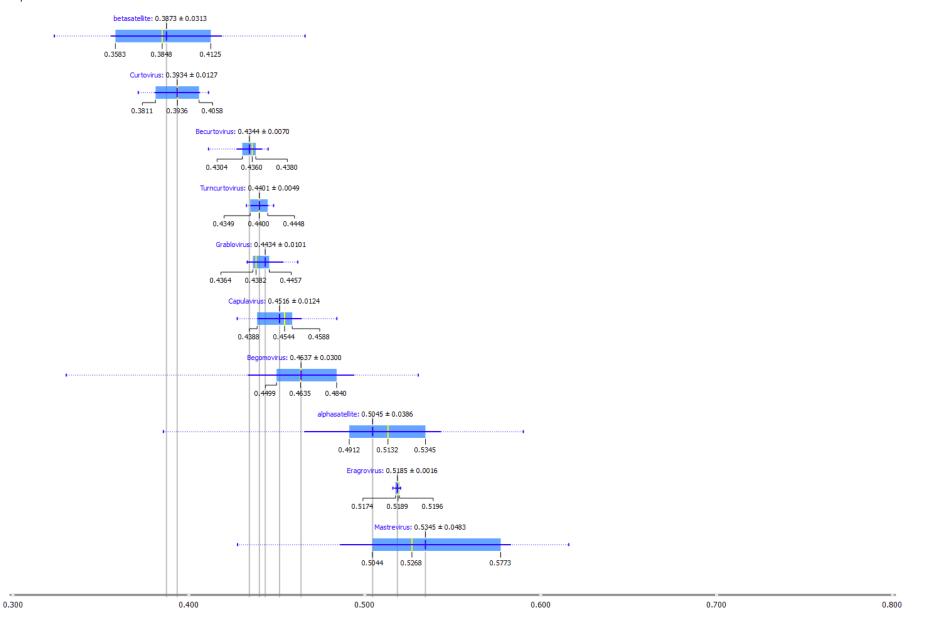
Curtovirus

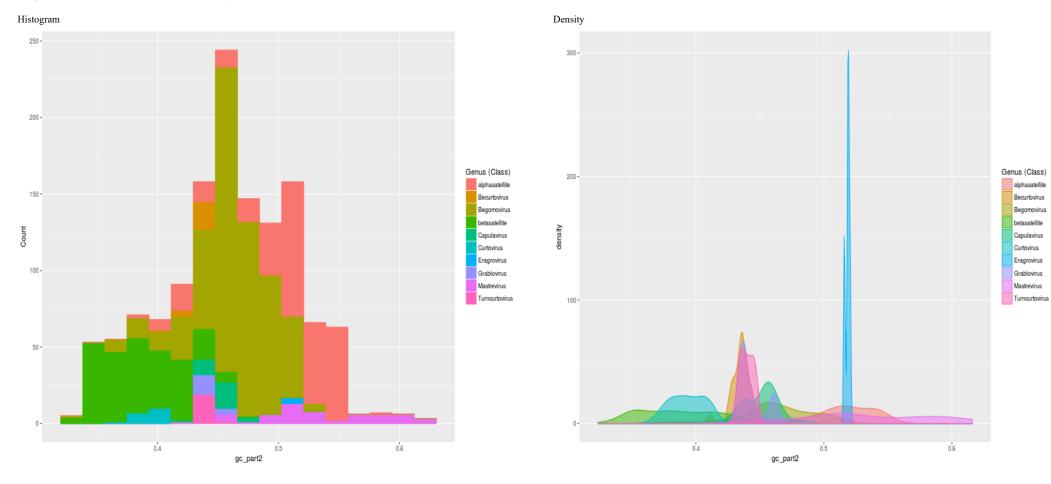
Eragrovirus

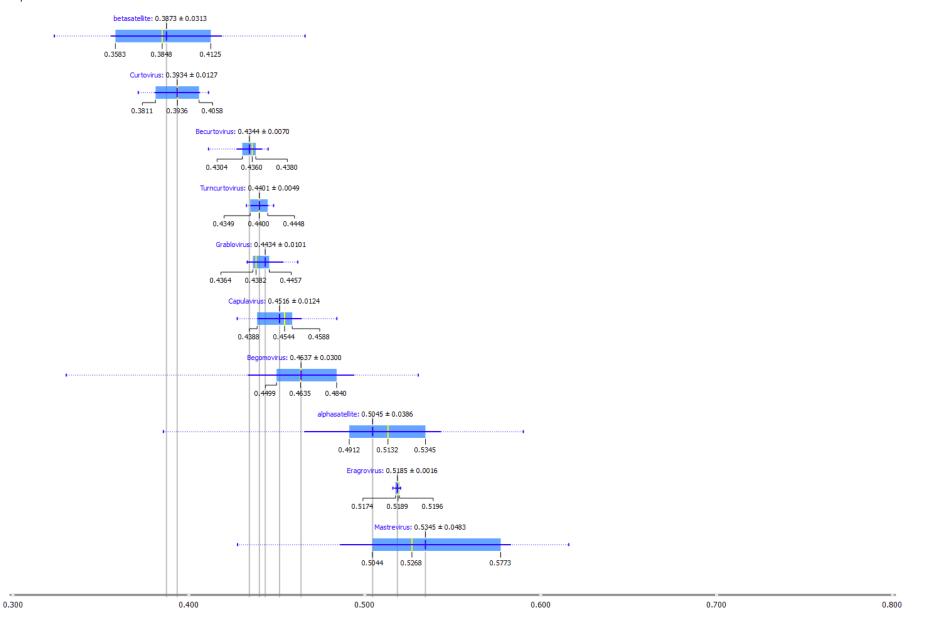
Grablovirus

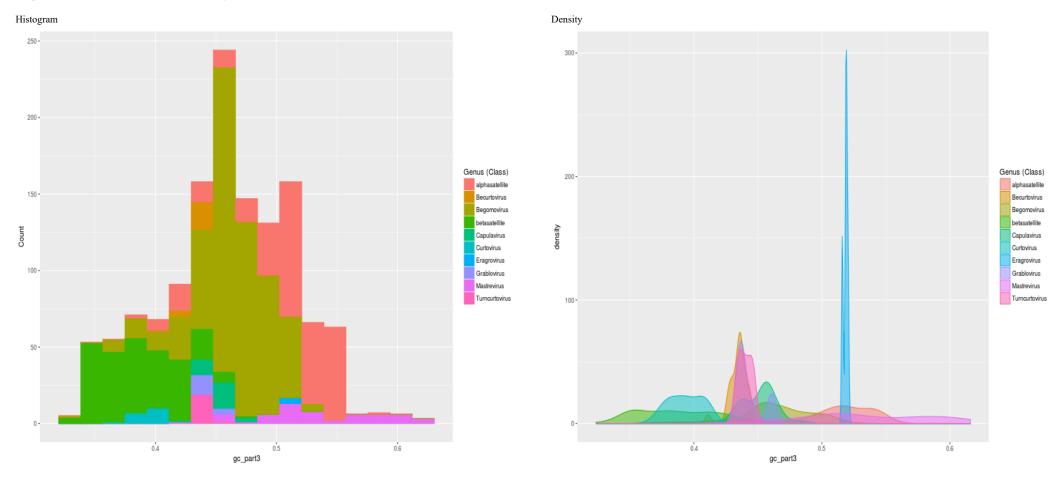
Mastrevirus

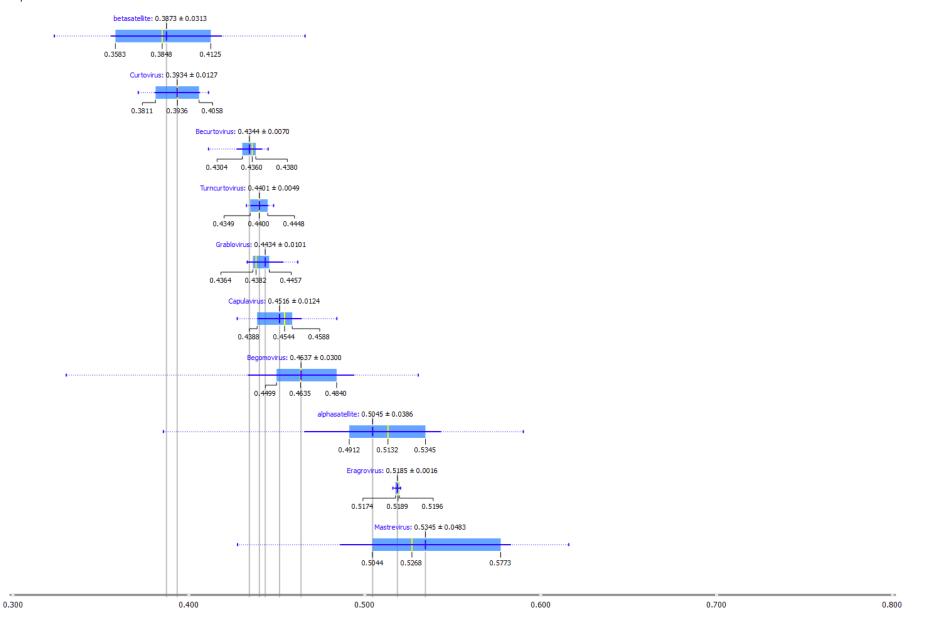
Turncurtovirus

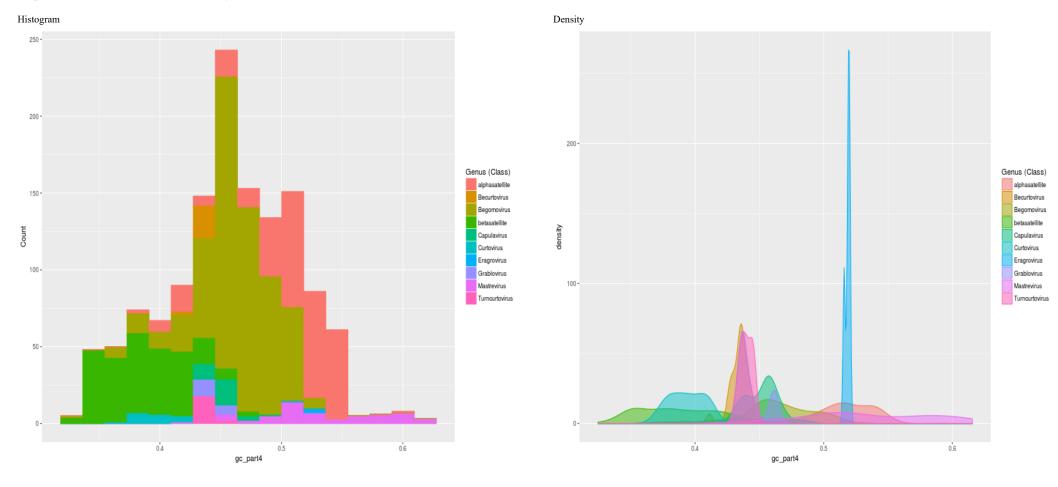


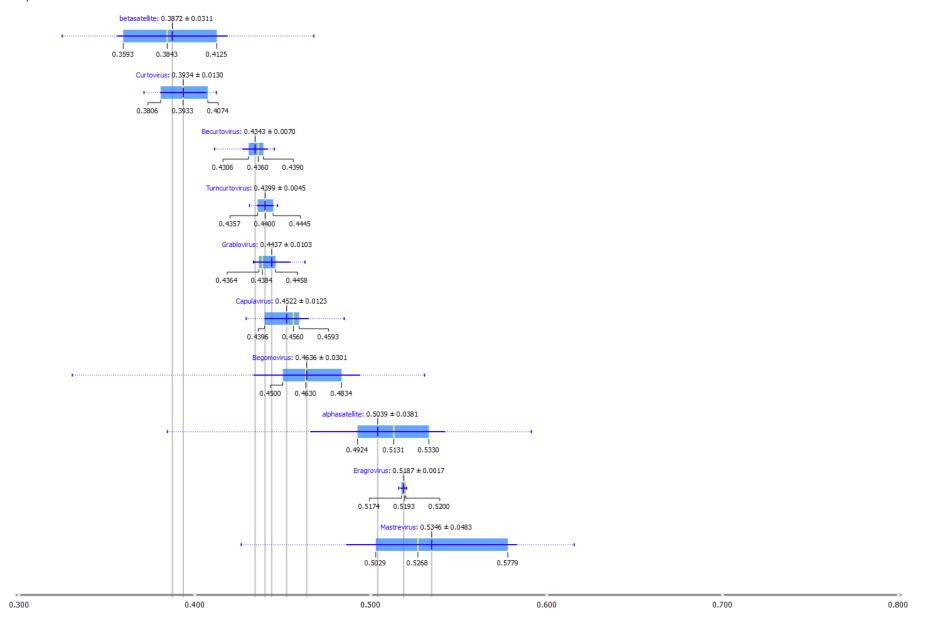








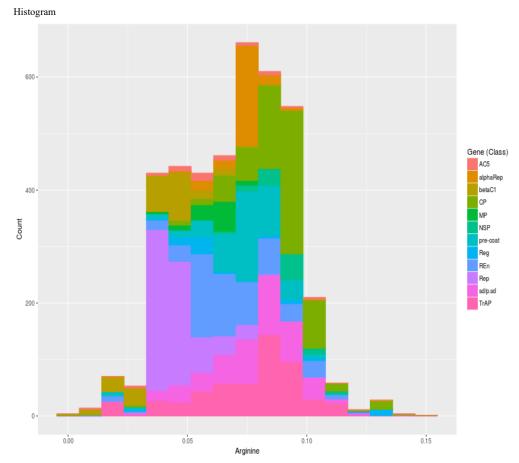


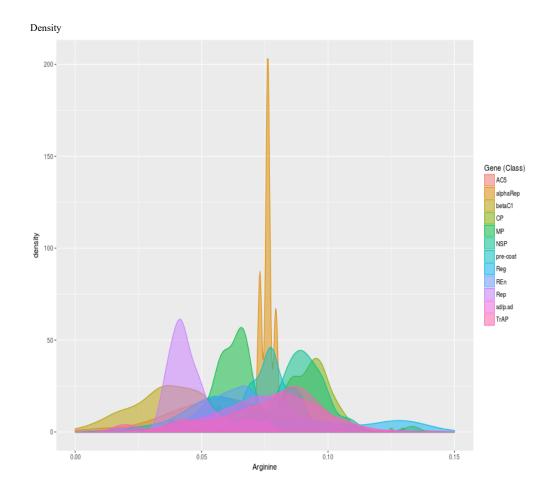


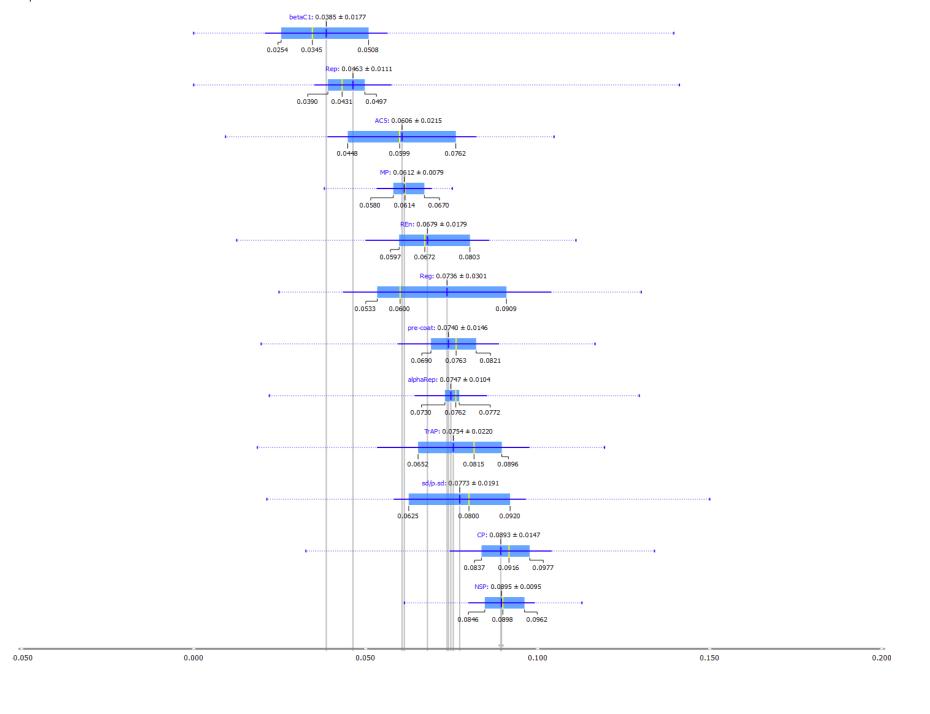
# **Charts of ORF attributes**

#### **Proportion of Arginine**



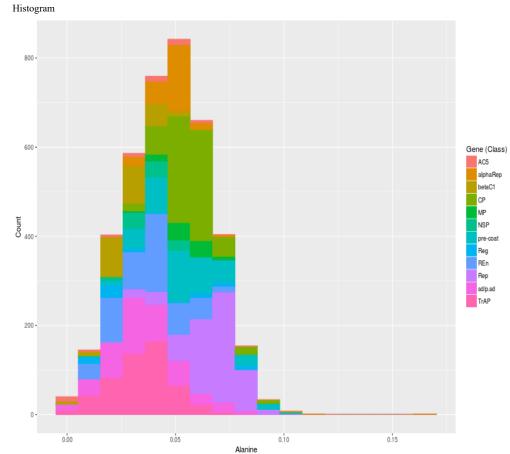


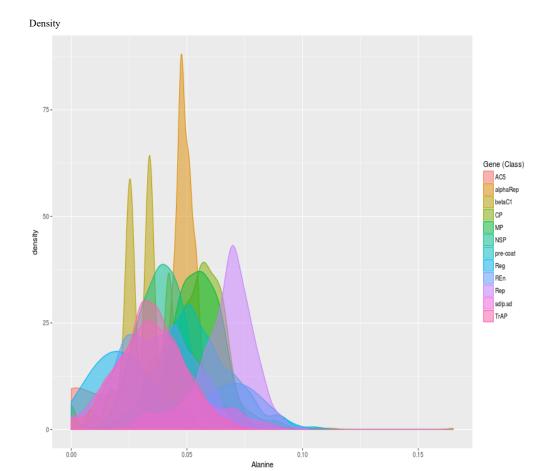




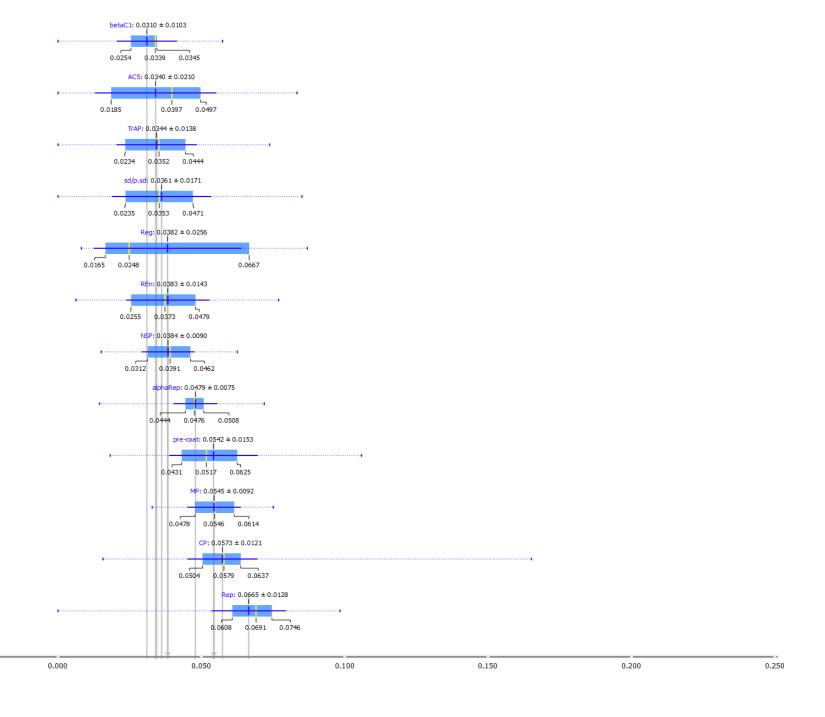
#### **Proportion of Alanine**



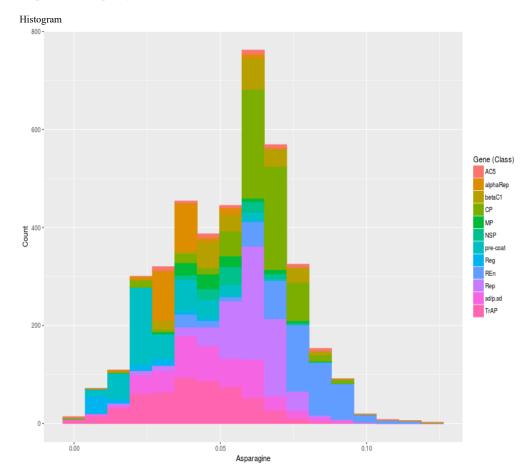


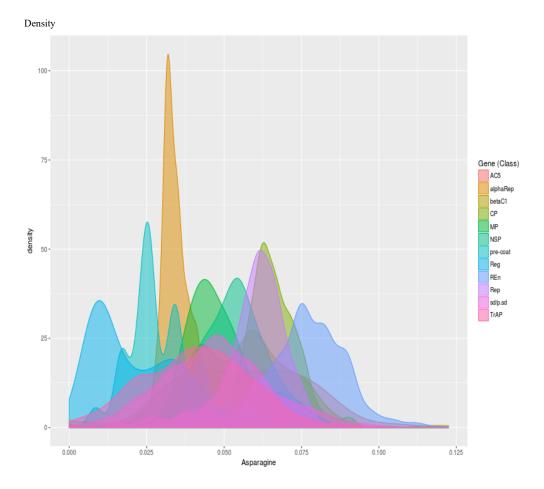


0.050



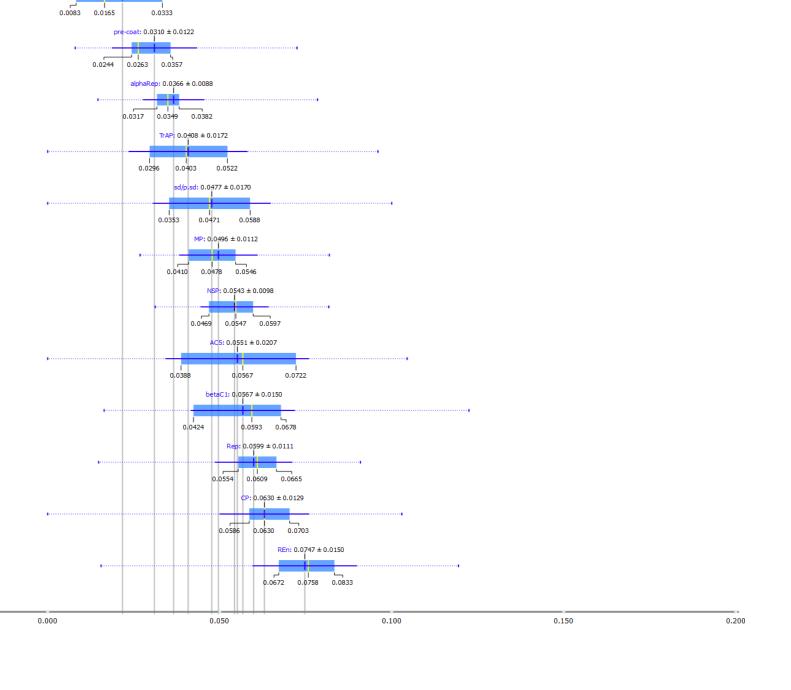
#### **Proportion of Asparagine**



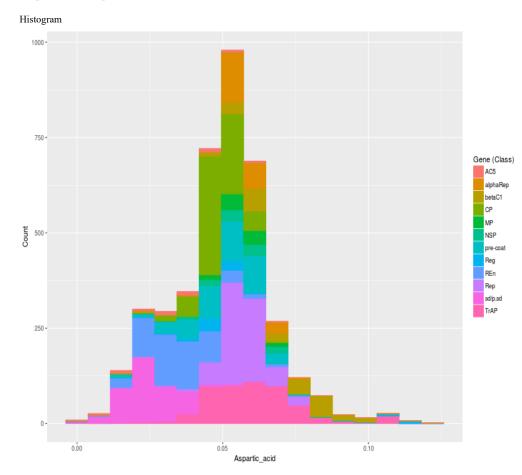


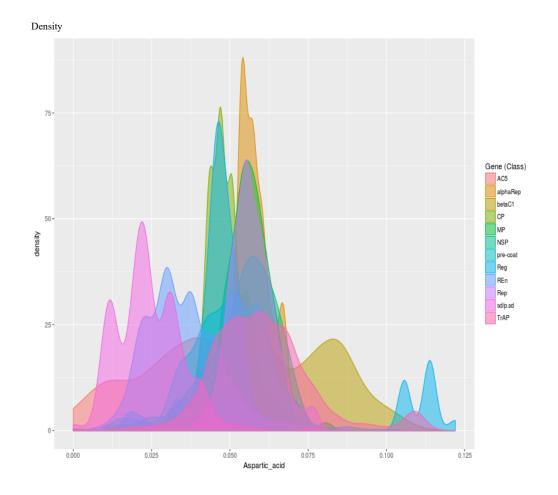
0.050

Reg: 0.0217 ± 0.0139

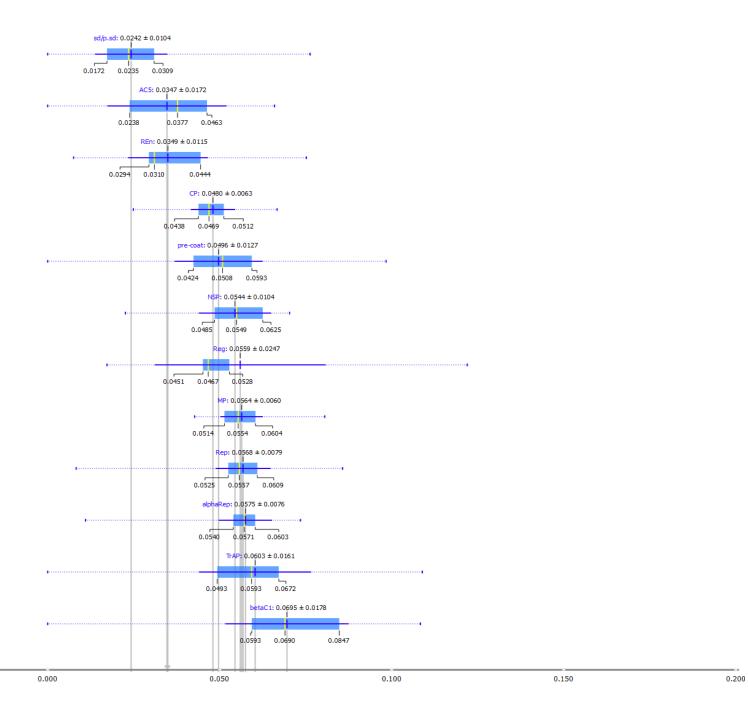


## **Proportion of Aspartic Acid**



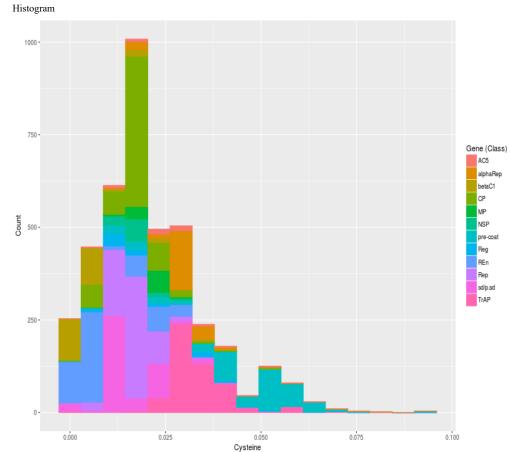


0.050

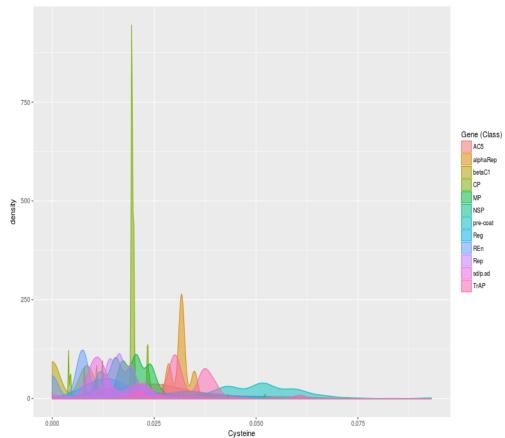


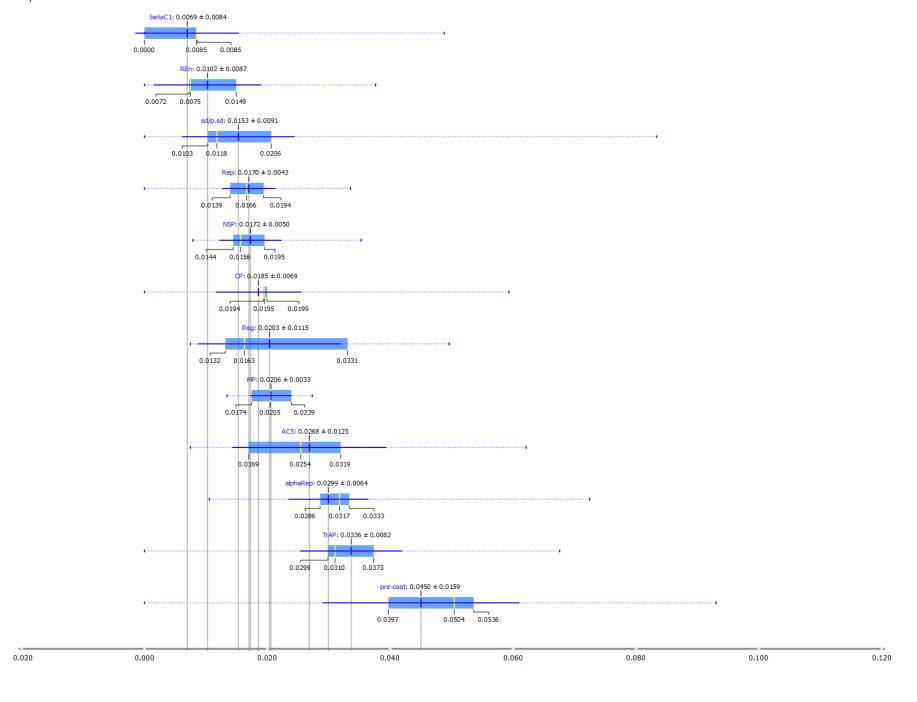
## **Proportion of Cysteine**





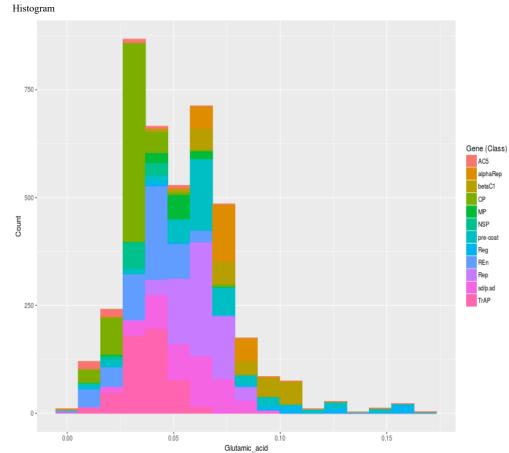


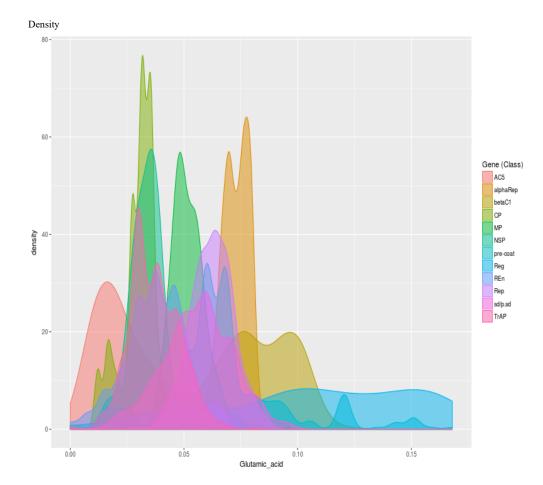


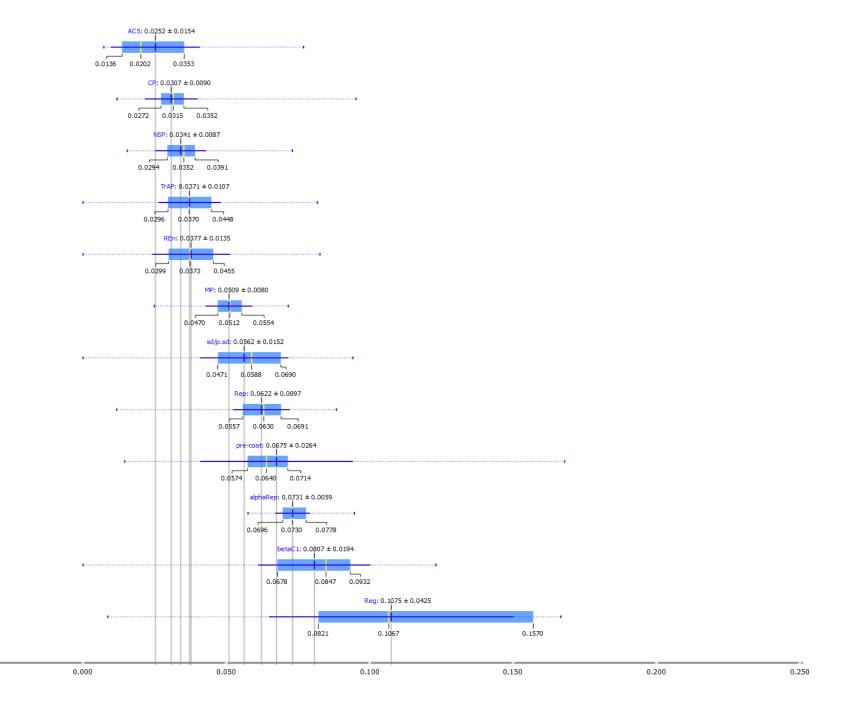


## **Proportion of Glutamic Acid**



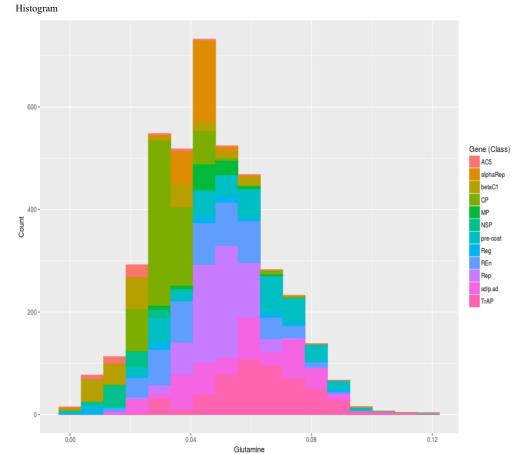




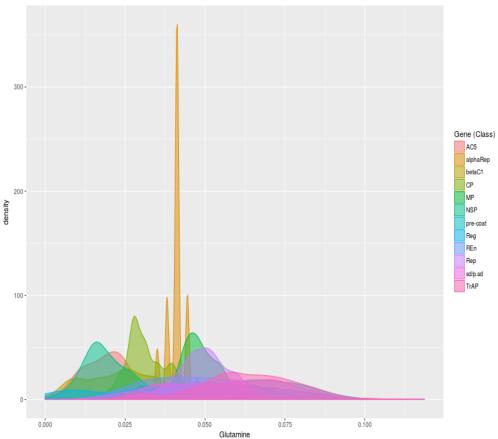


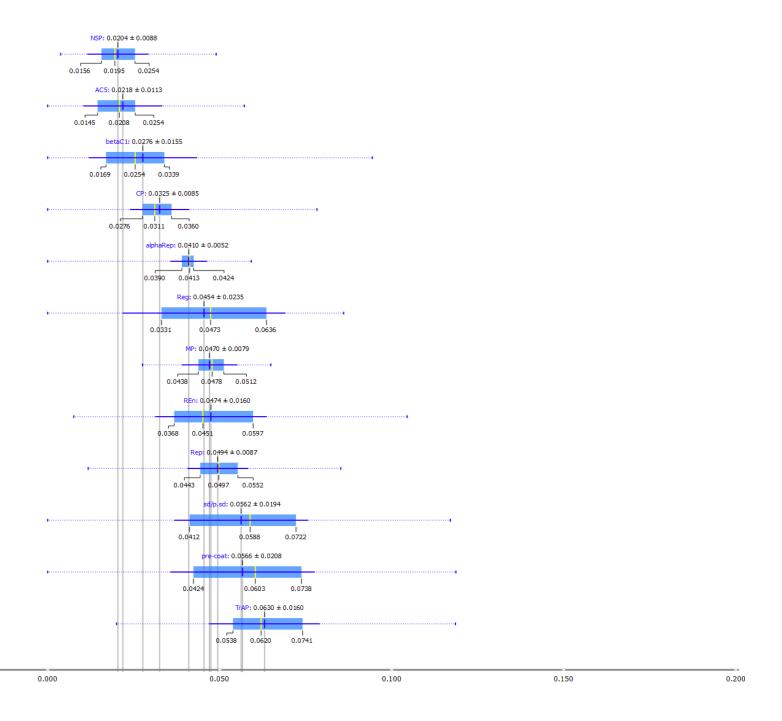
## **Proportion of Glutamine**





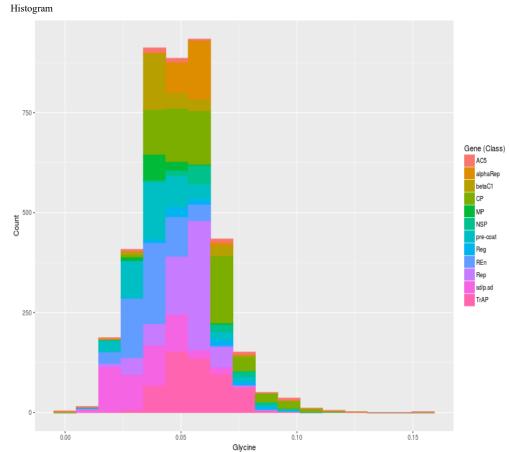


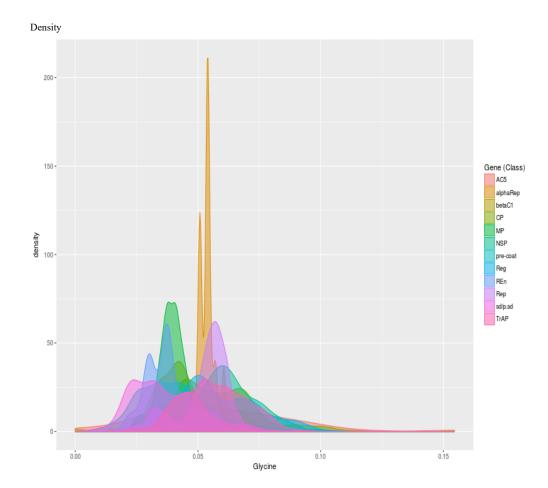




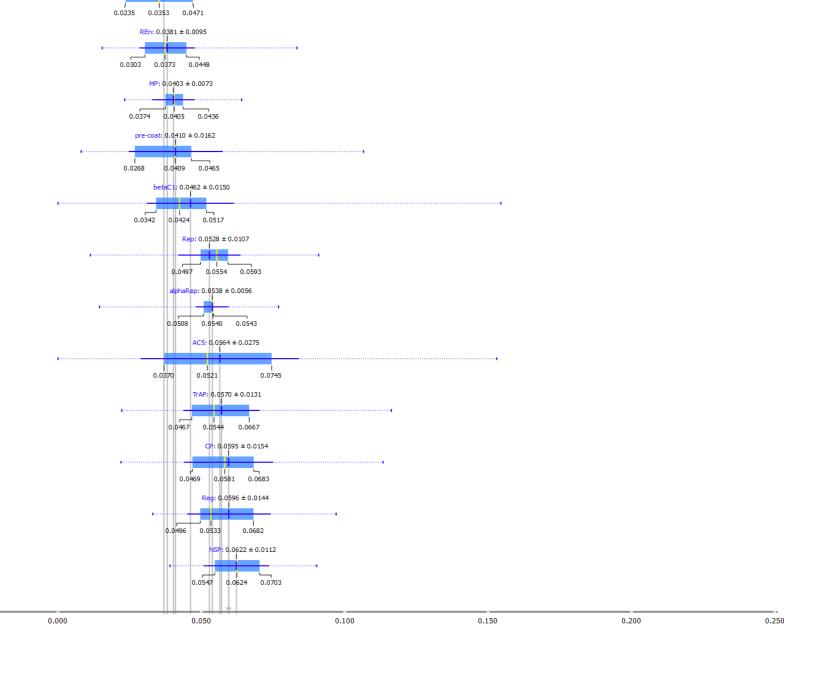
# **Proportion of Glycine**





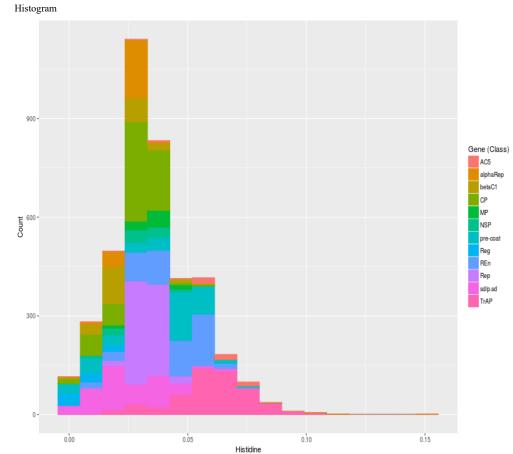


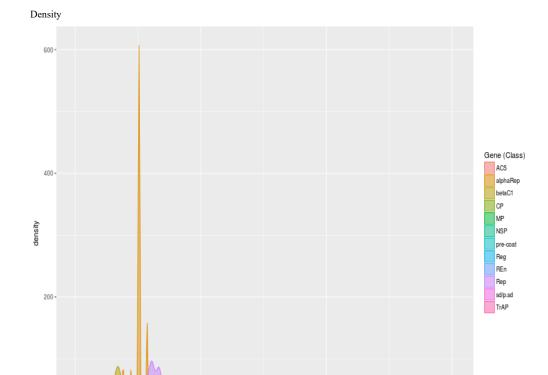
sd/p.sd: 0.0369 ± 0.0141



## **Proportion of Histidine**







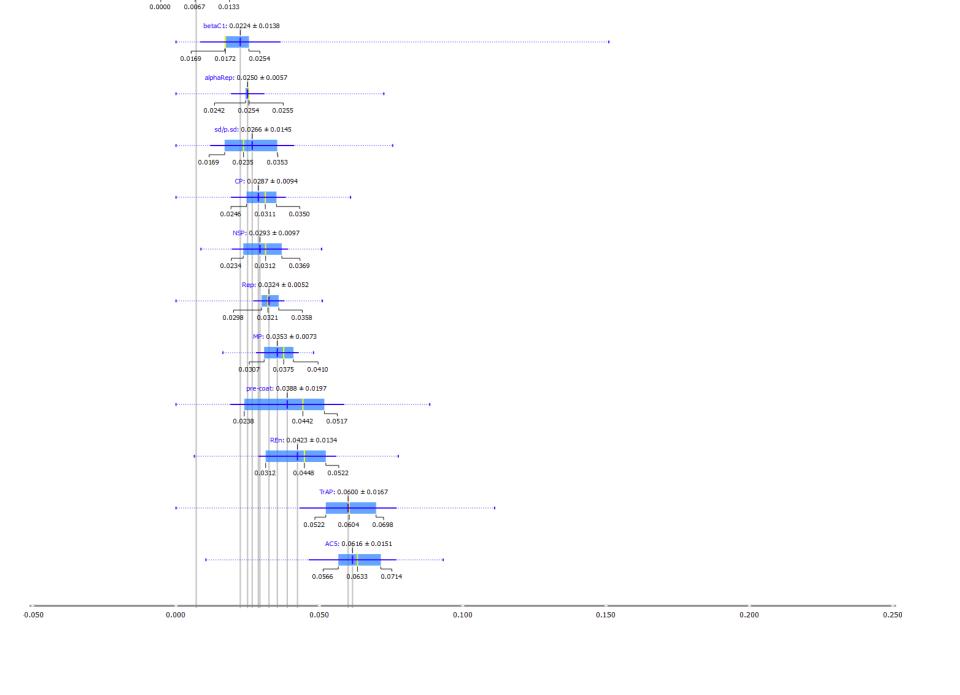
0.10

Histidine

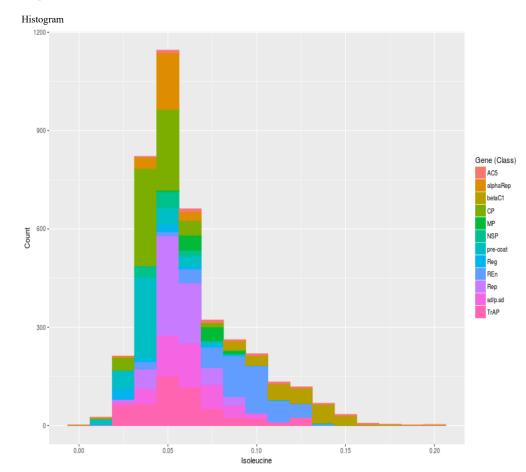
0.15

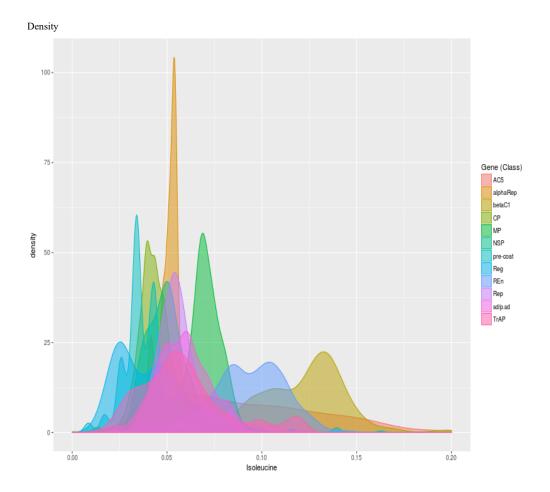
0.05

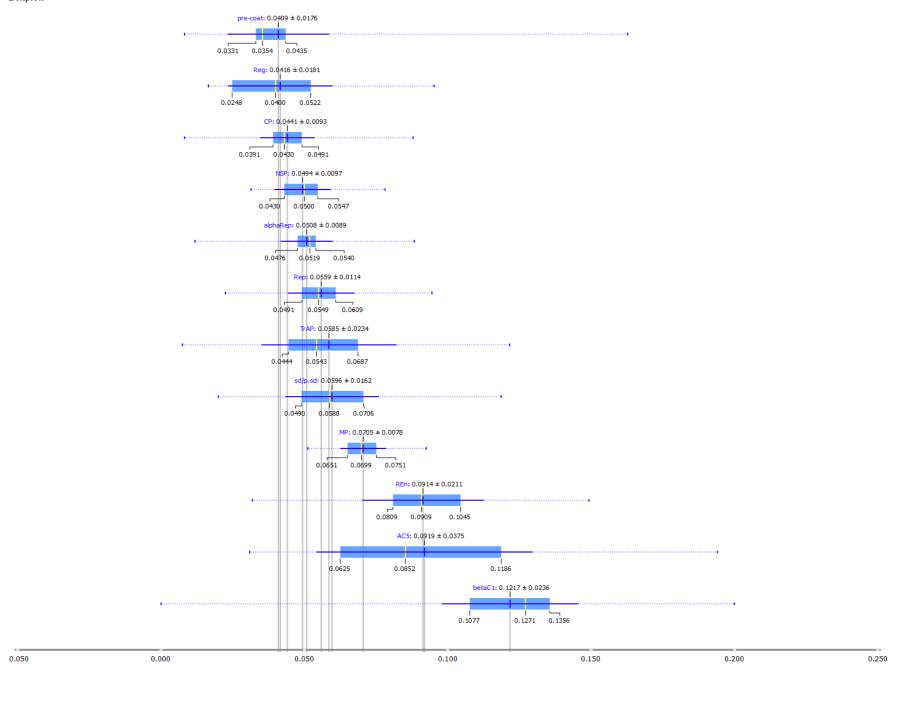
Reg: 0.0070 ± 0.0072



## **Proportion of Isoleucine**

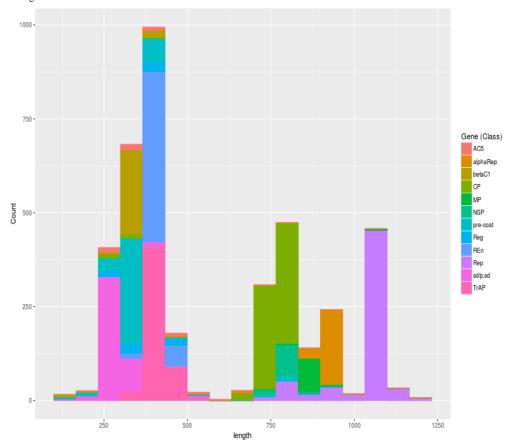


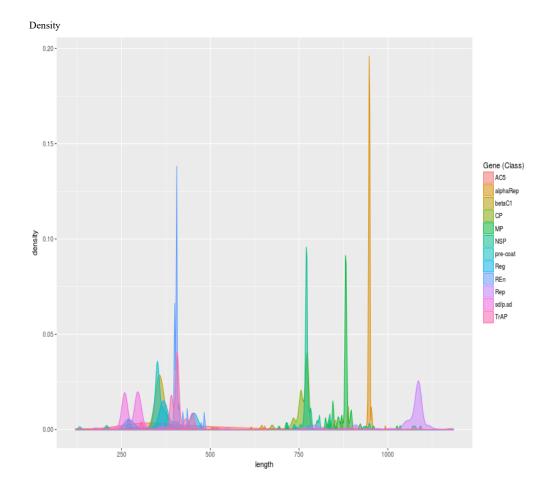


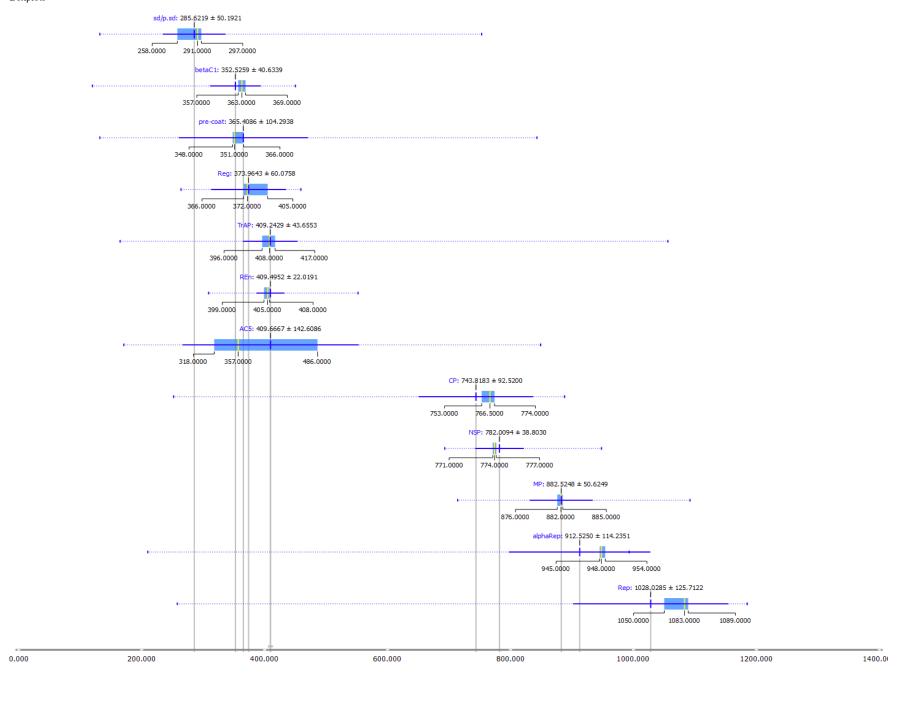


### Length



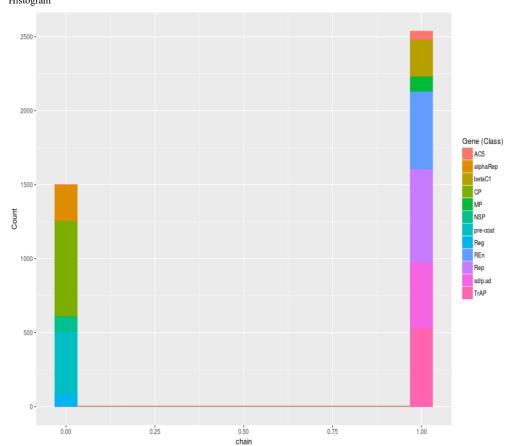




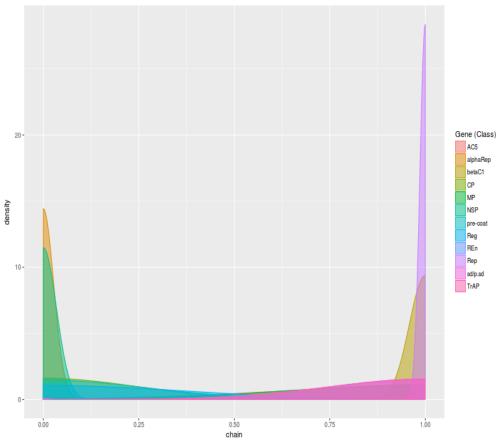


### Sense



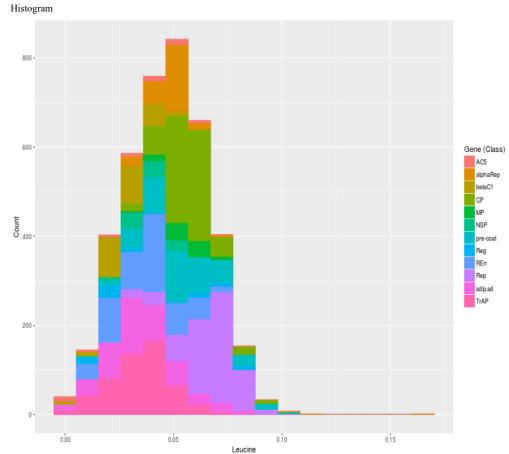




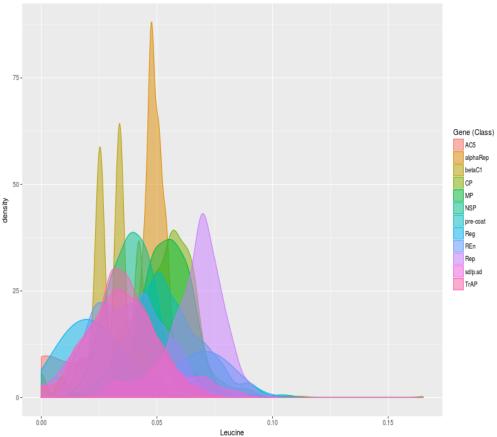


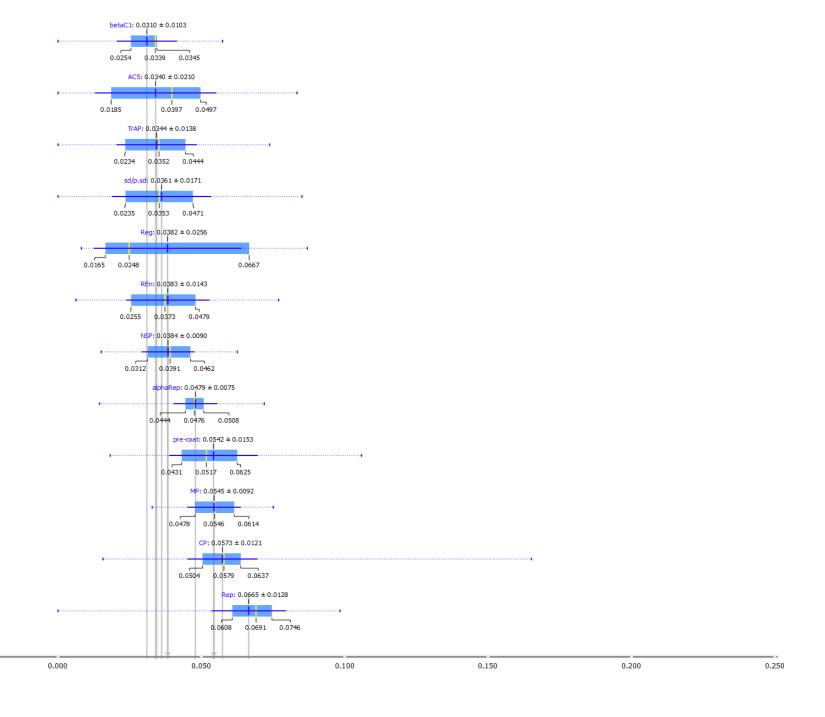
## **Proportion of Leucine**





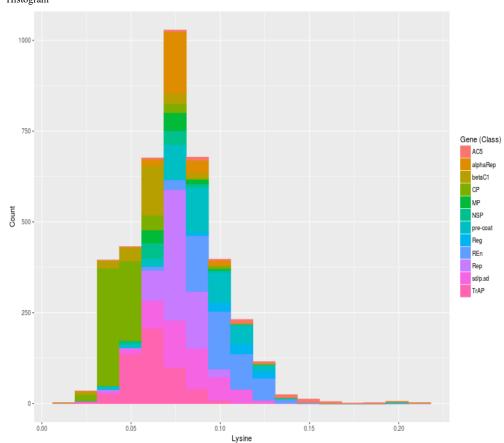


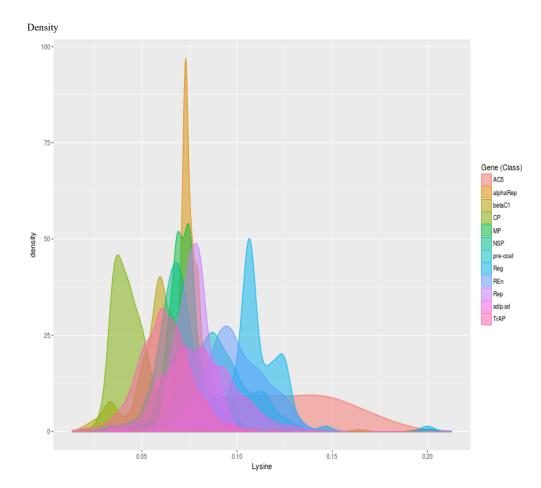


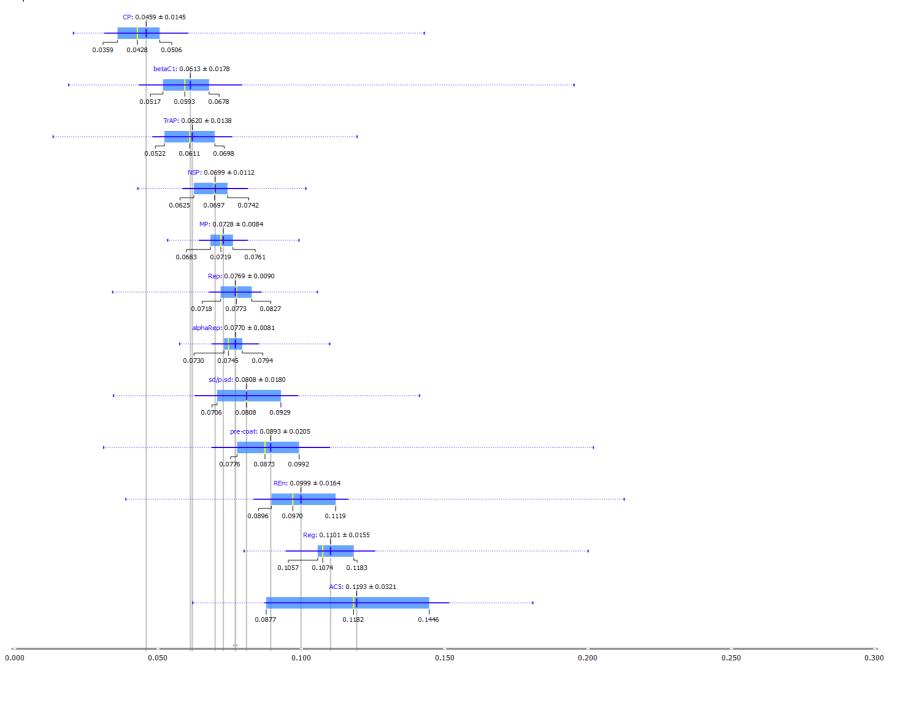


## **Proportion of Lysine**



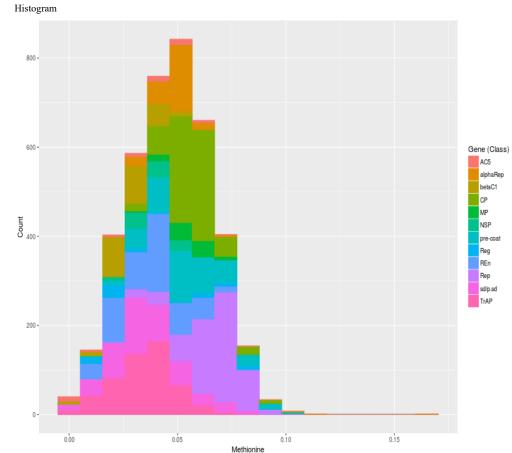


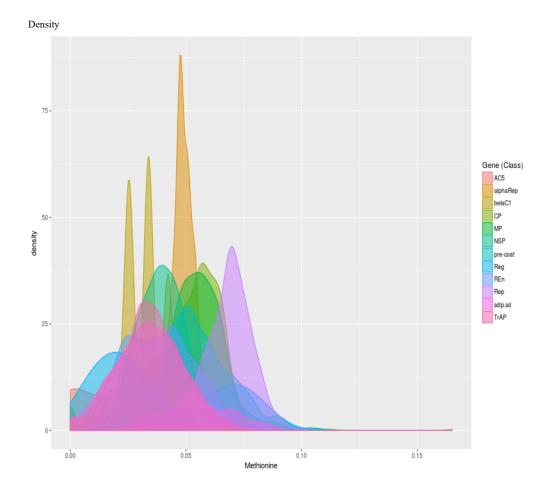


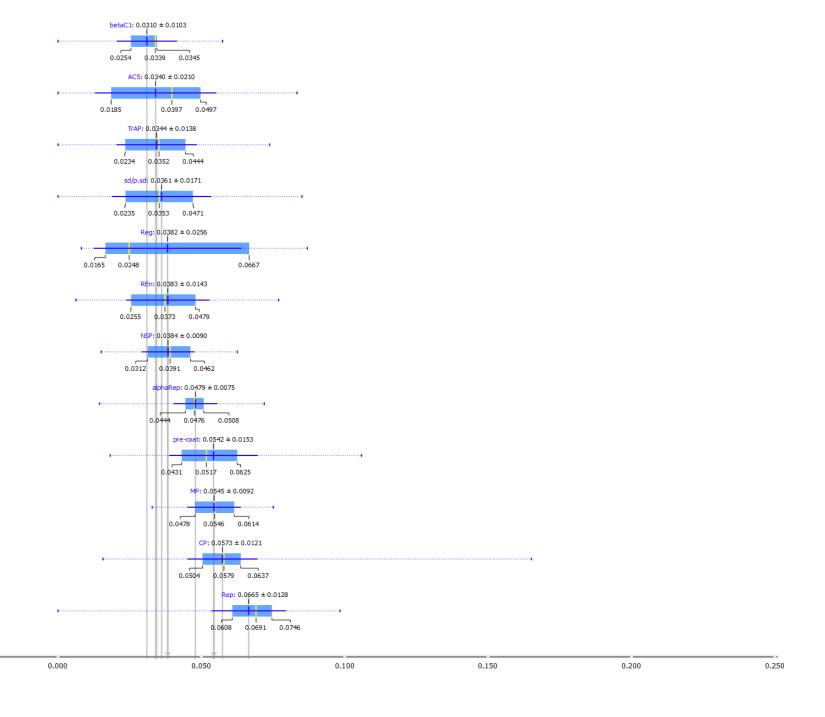


## **Proportion of Methionine**



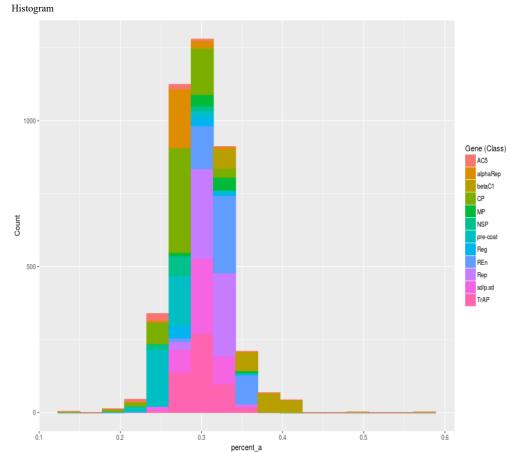


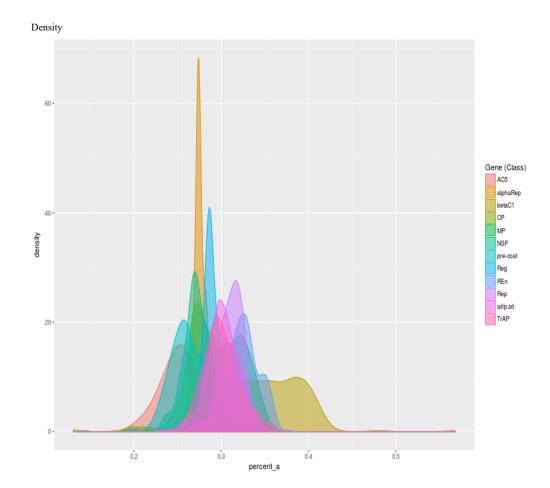


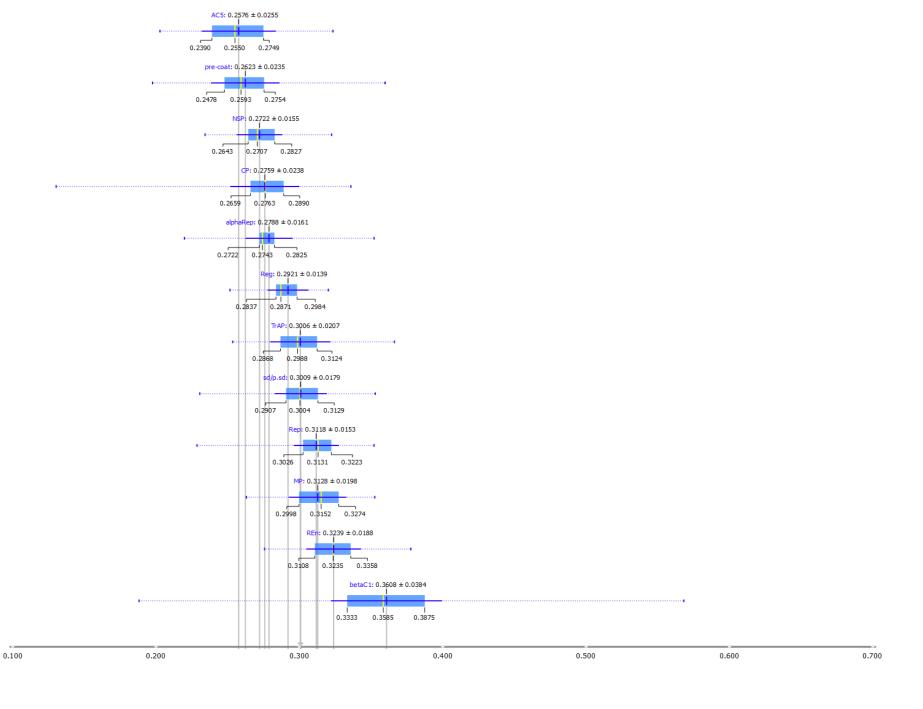


## **Proportion of Adenine**

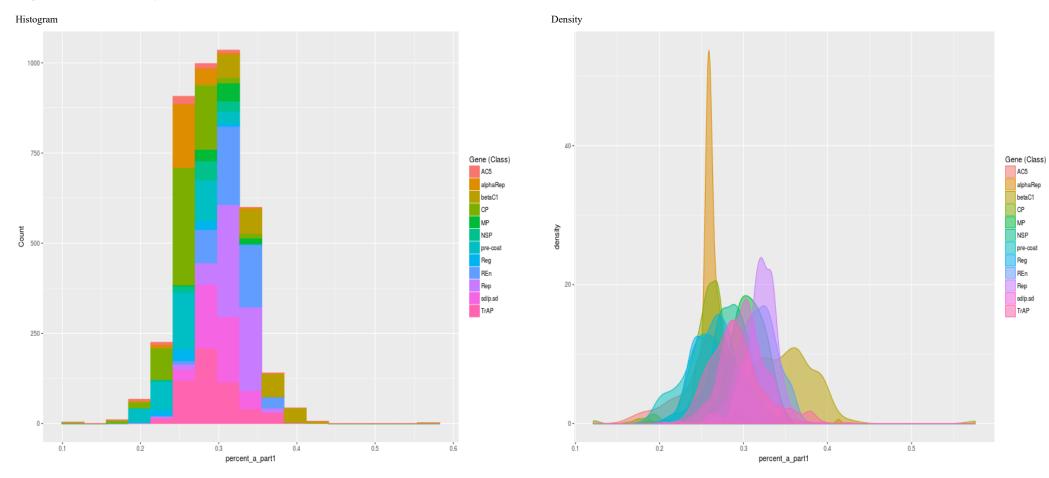






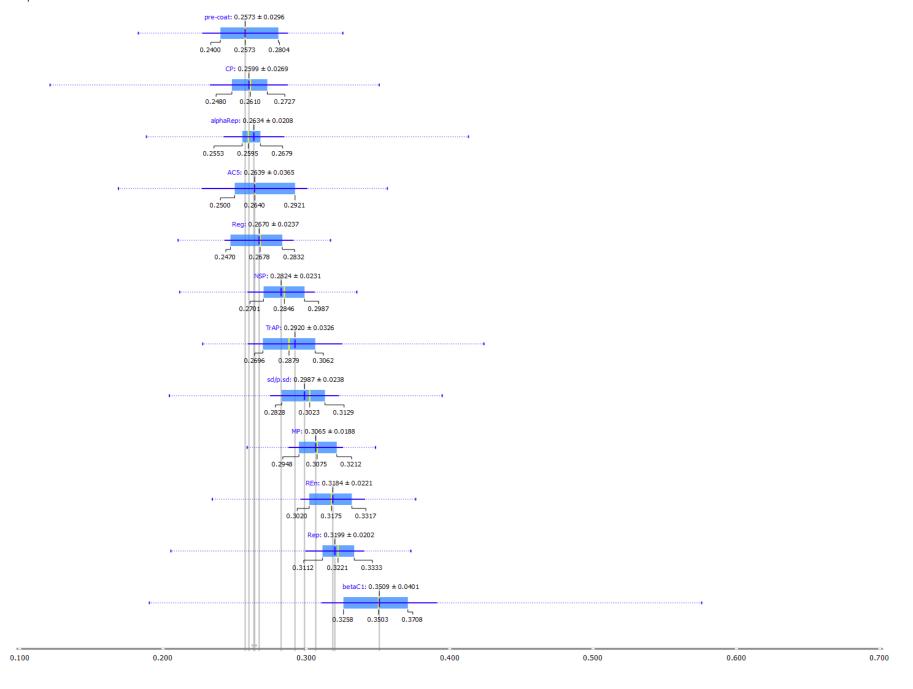


## Proportion of Adenine in region 1

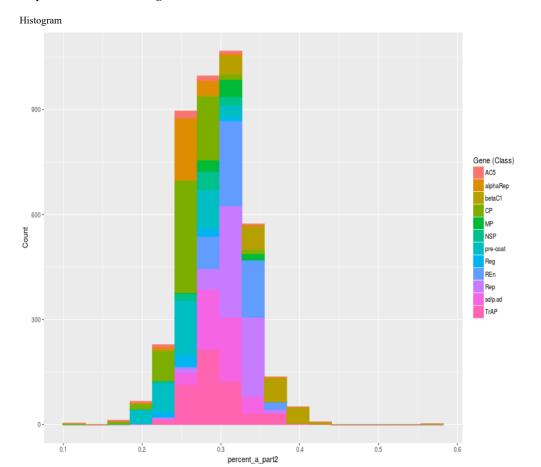


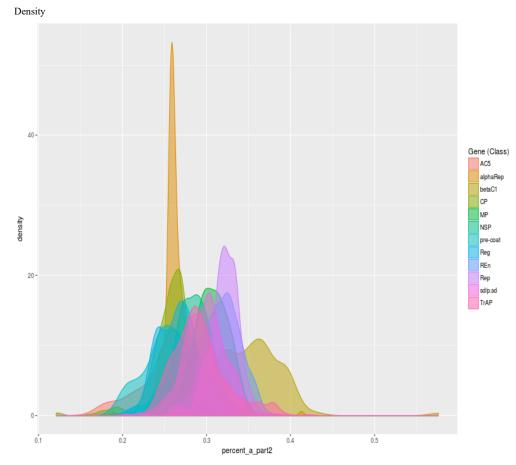
alphaRep

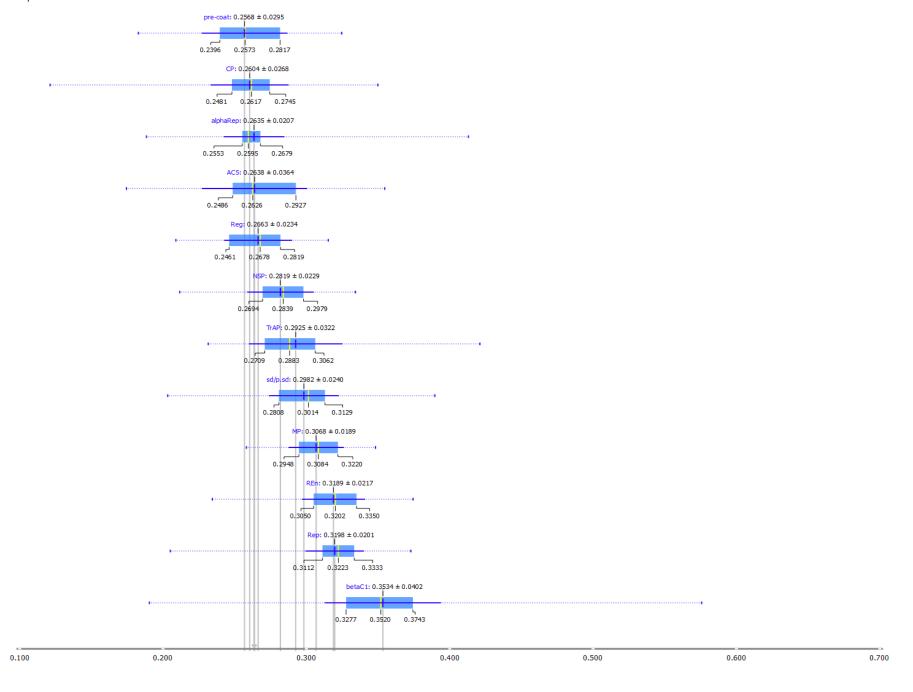
Reg



## Proportion of Adenine in region 2

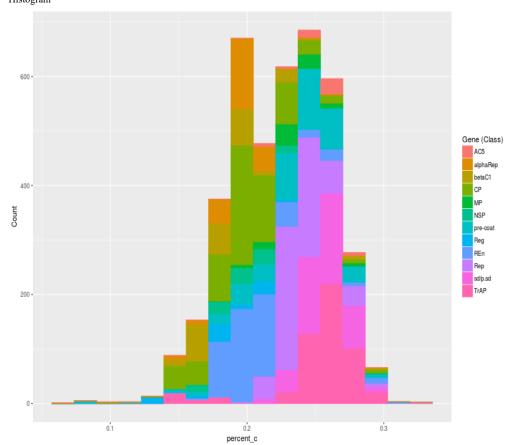




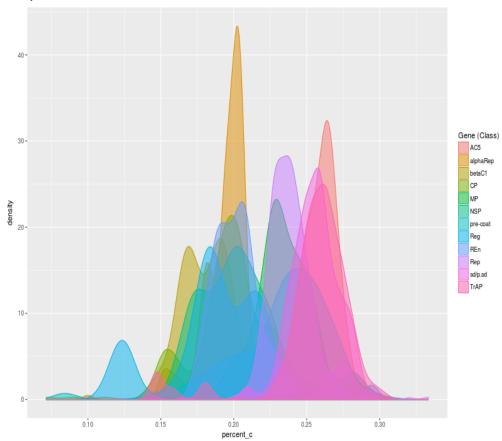


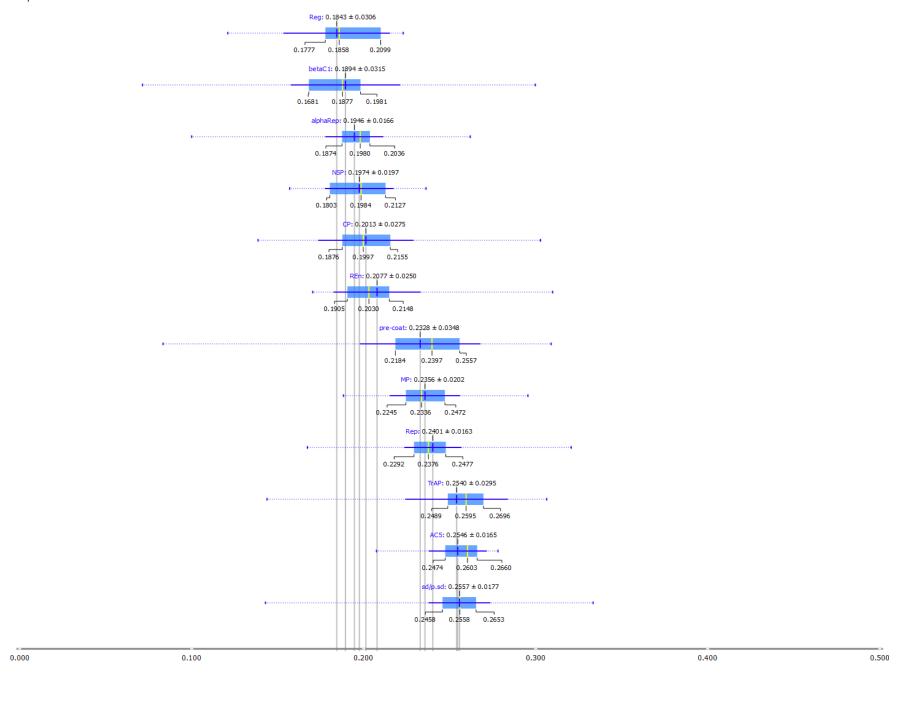
## **Proportion of Cytosine**





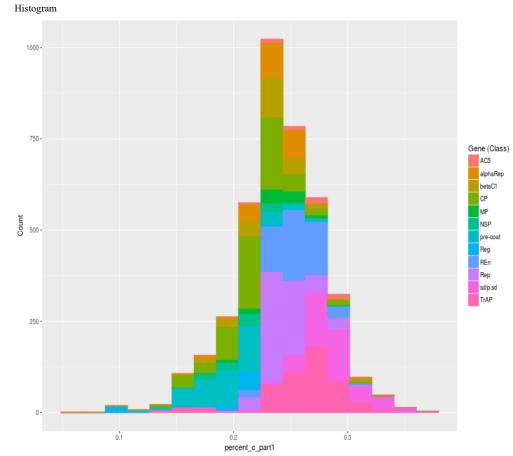
### Density

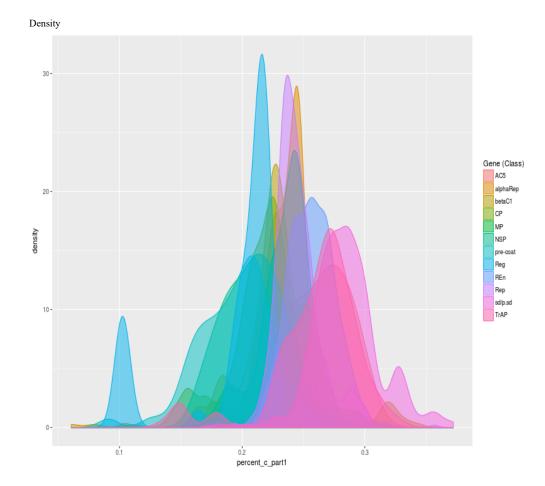


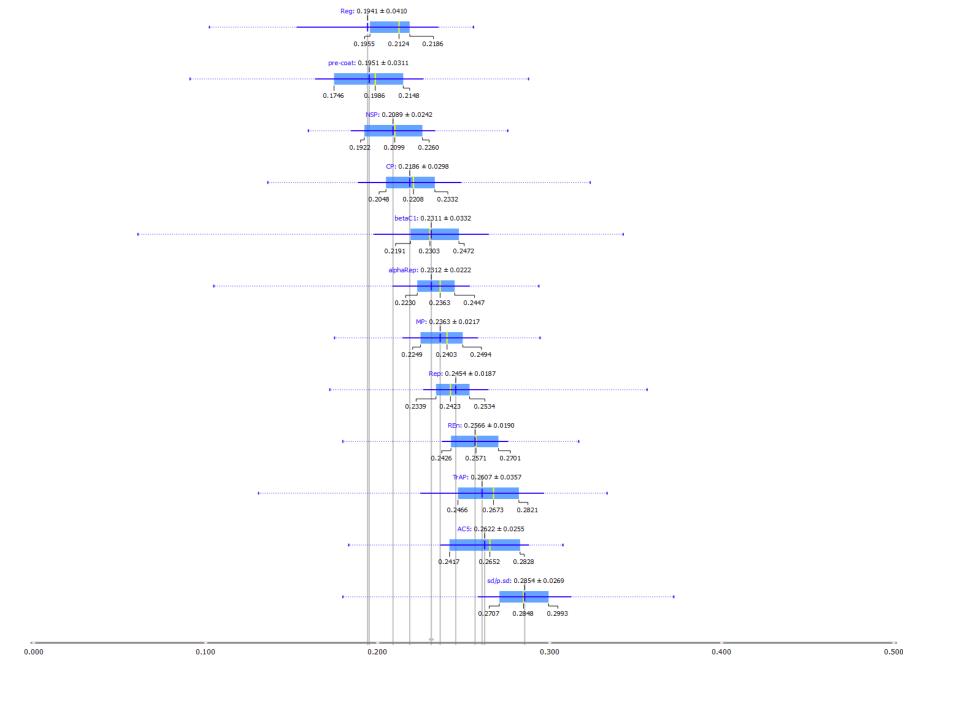


## Proportion of Cytosine in region 1

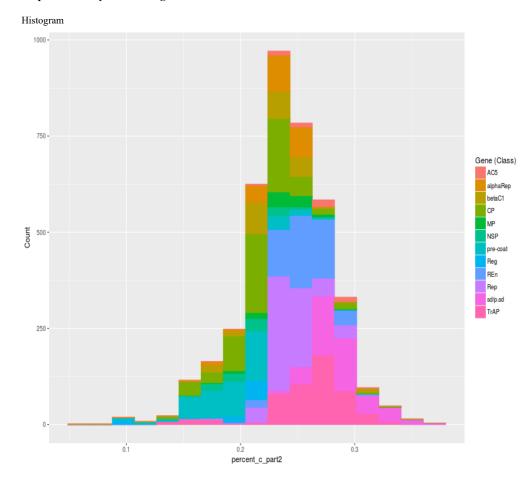


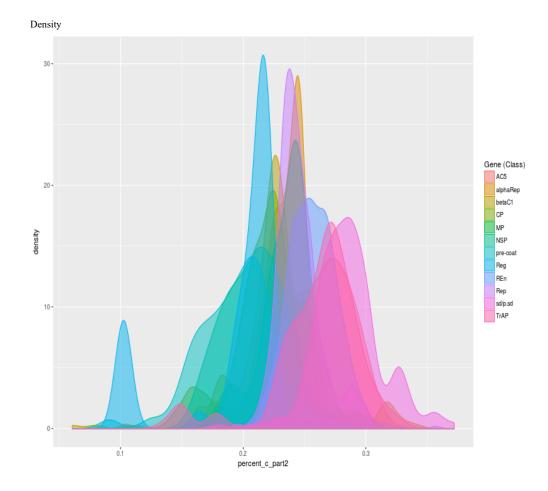


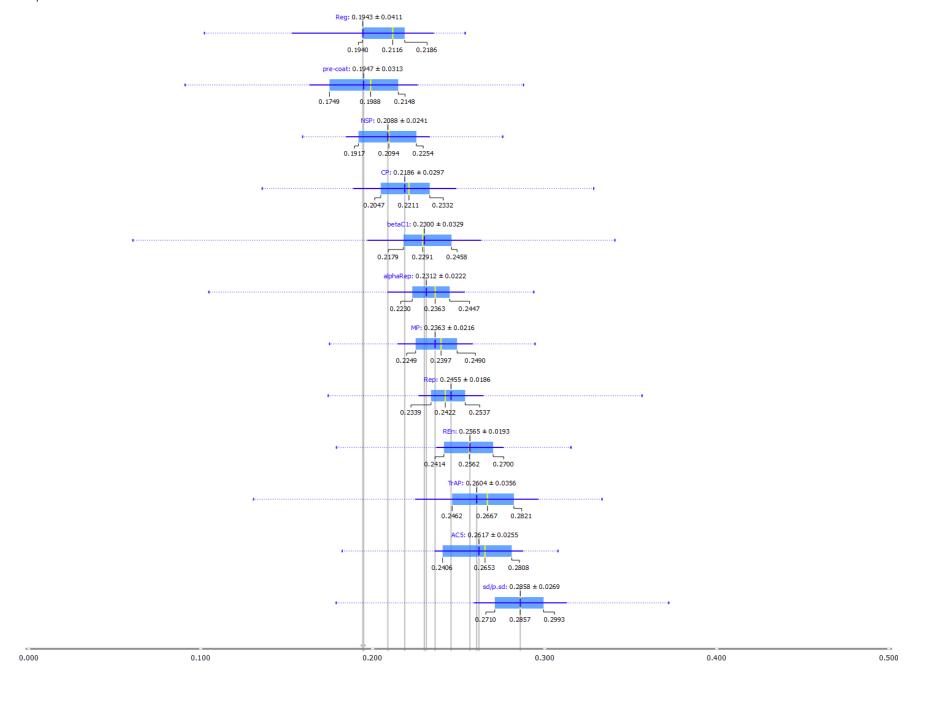




## Proportion of Cytosine in region 2

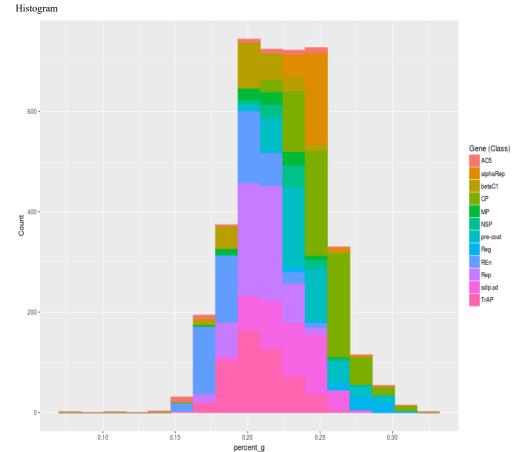




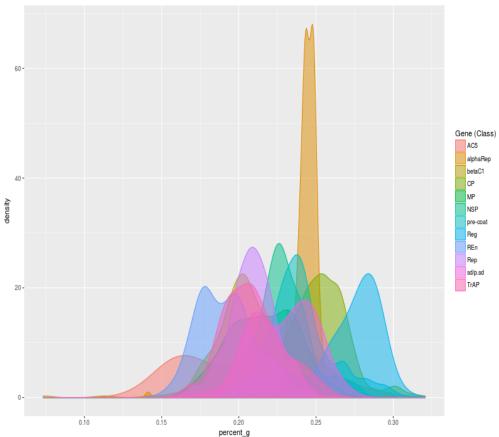


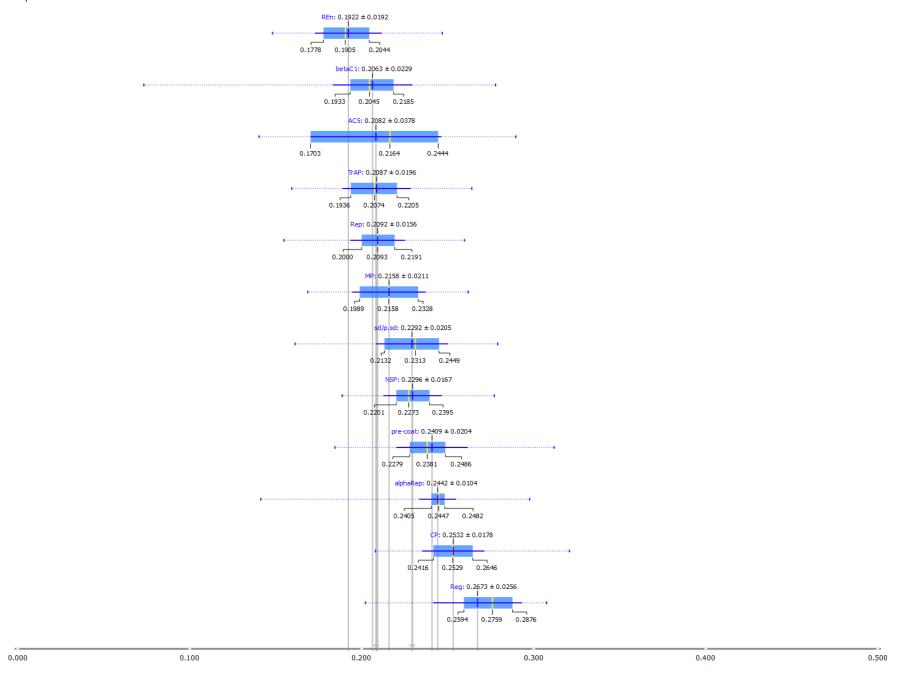
## **Proportion of Guanine**





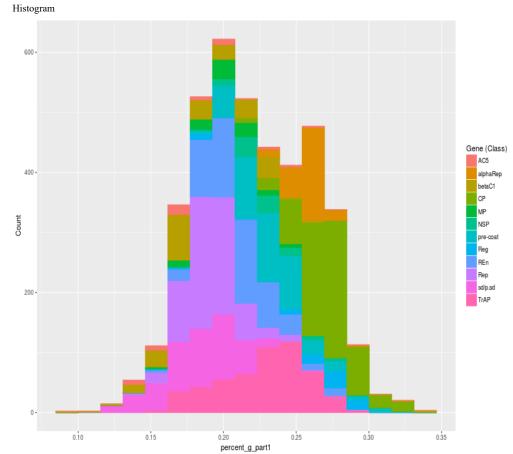


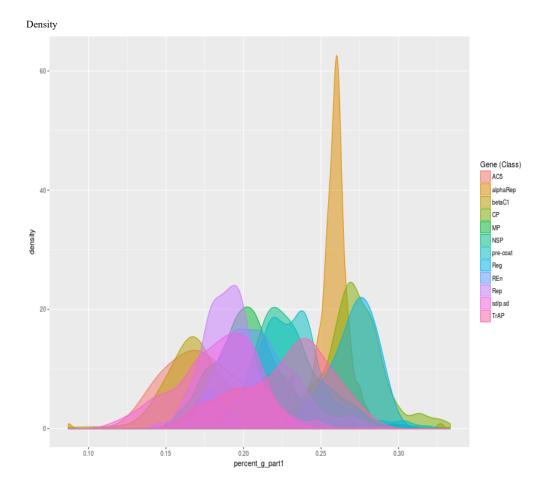


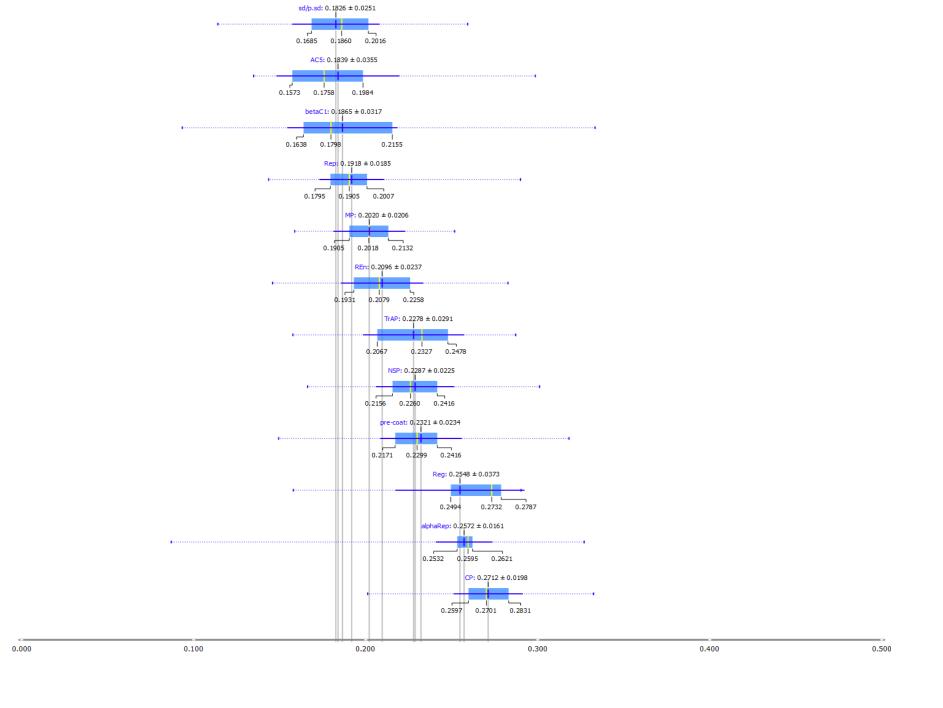


## Proportion of Guanine in region 1



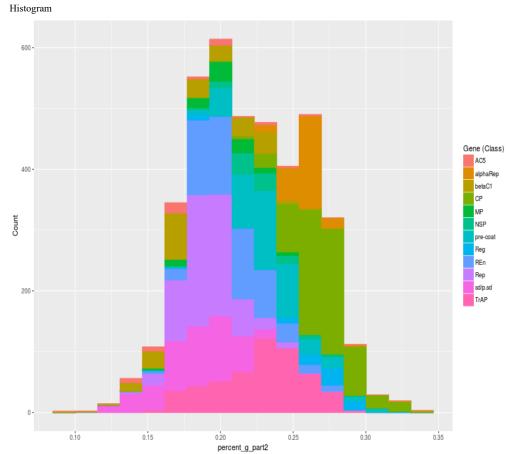


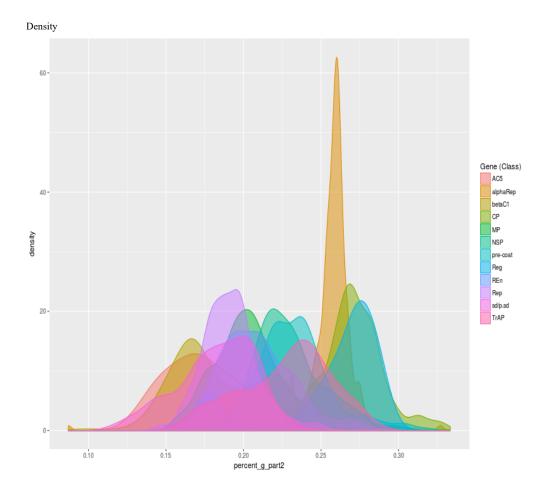


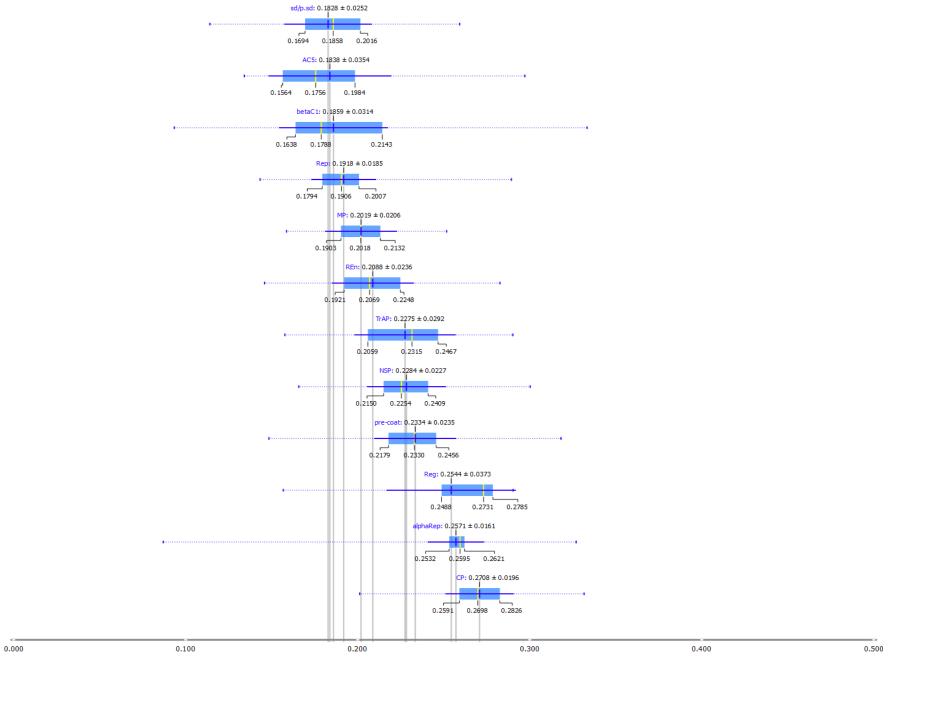


## Proportion of Guanine in region 2

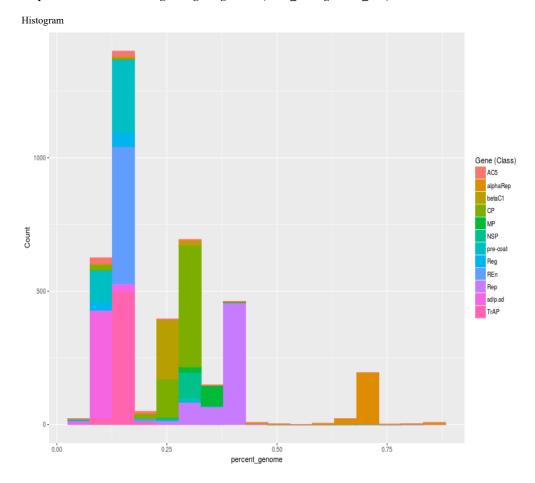


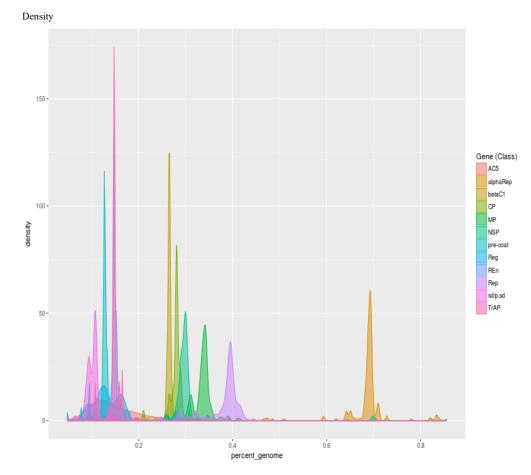


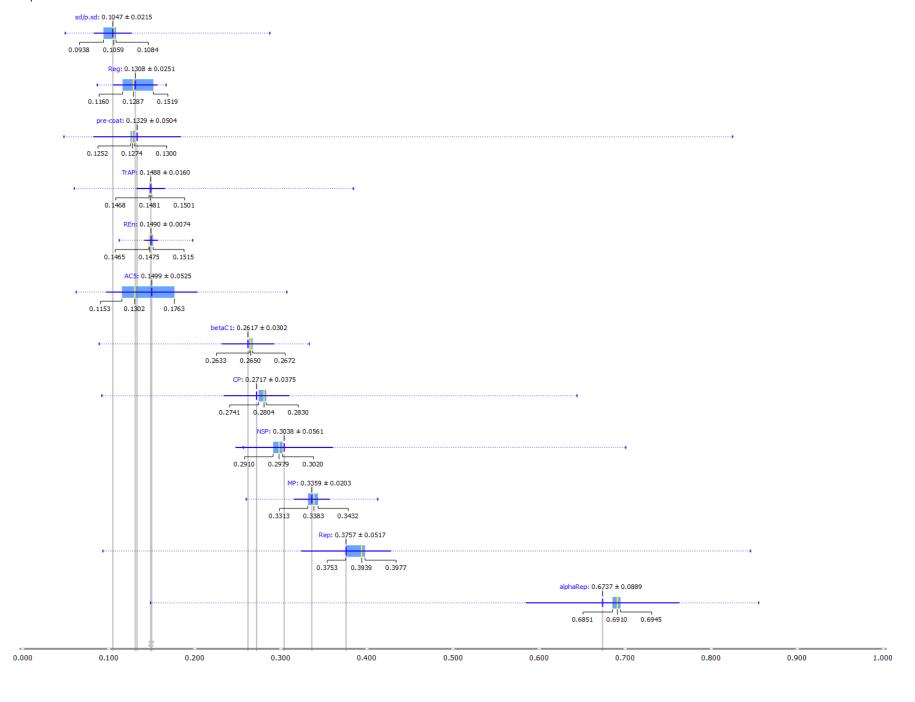




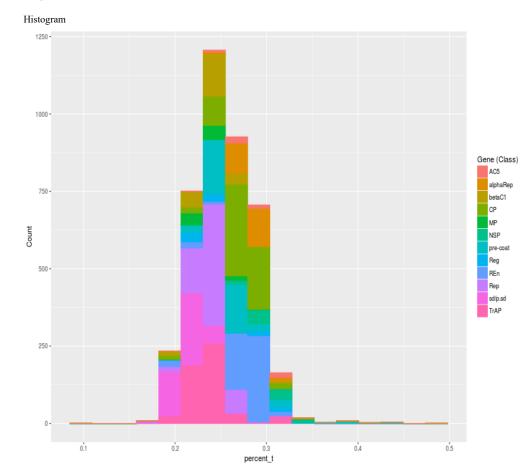
## Proportion of nucleotides regarding the genome (ORF\_size / genome\_size)

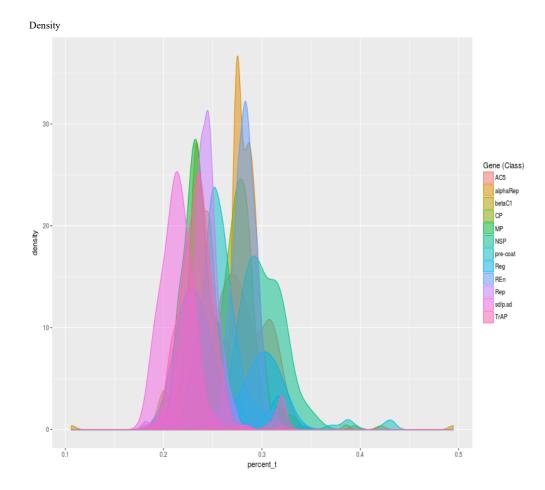


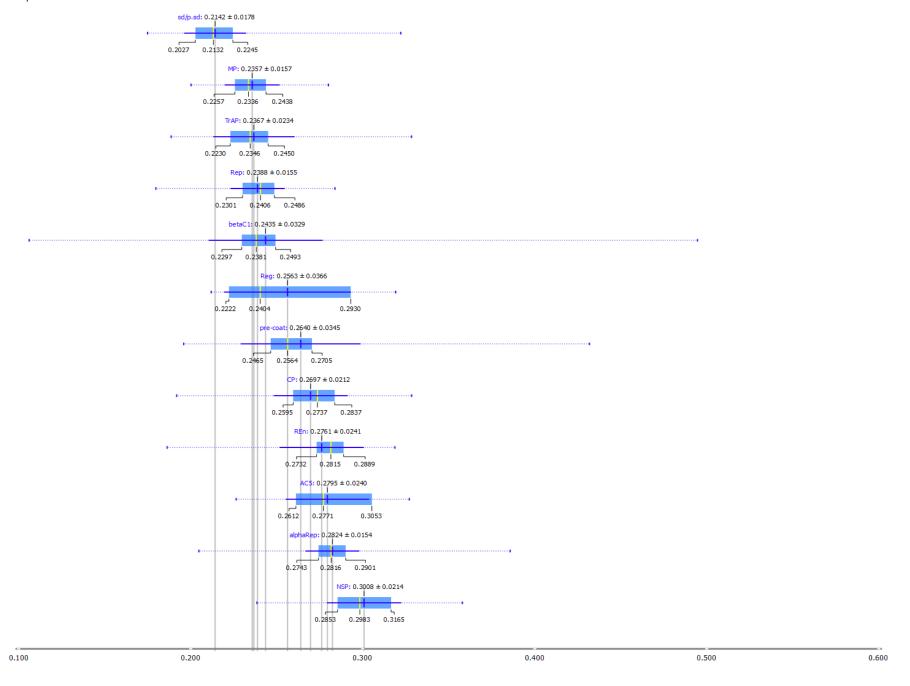




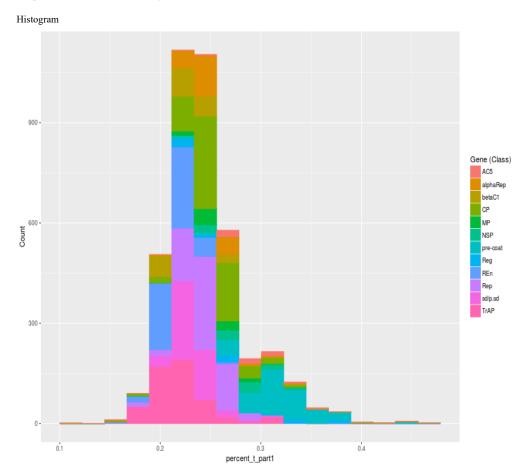
## **Proportion of Thymine**

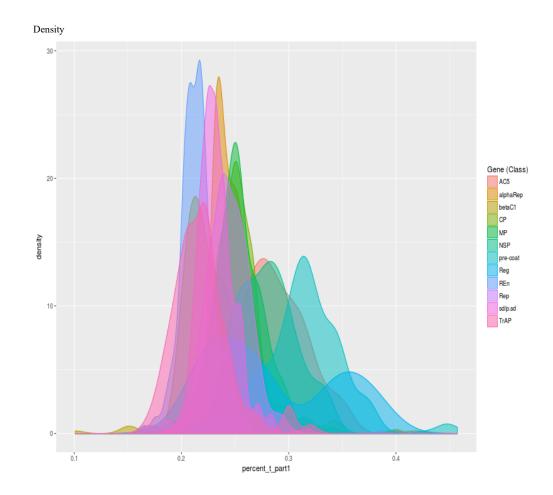


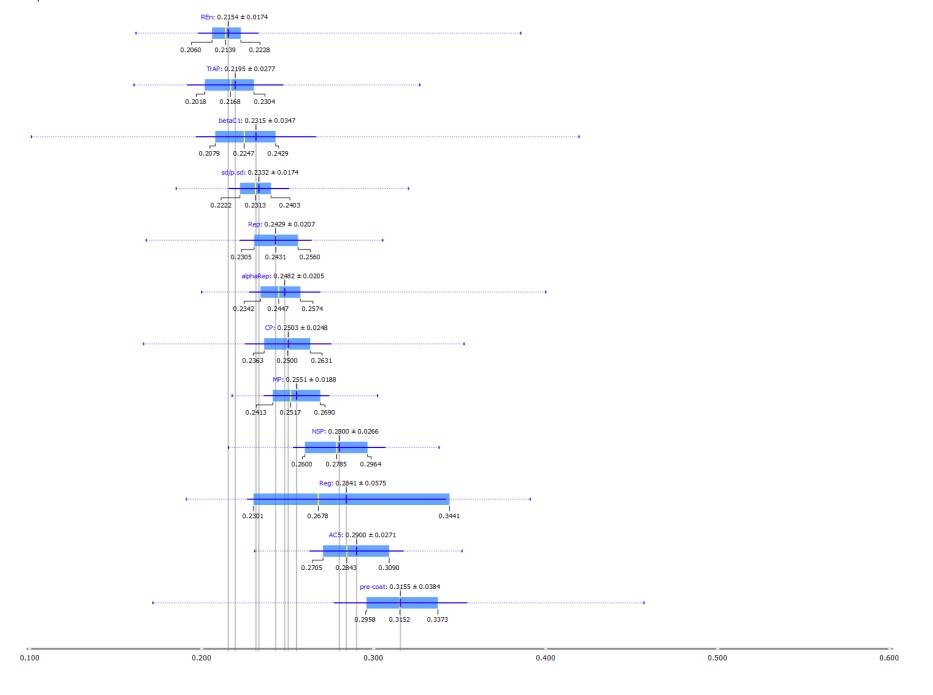




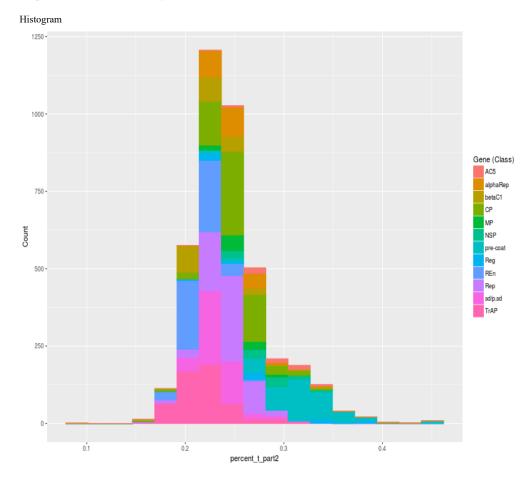
## Proportion of Thymine in region 1

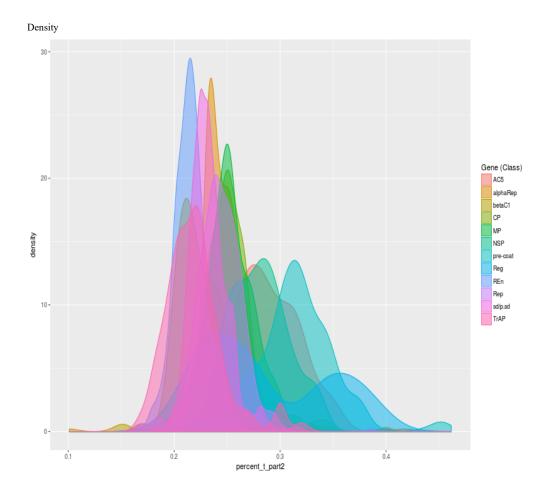


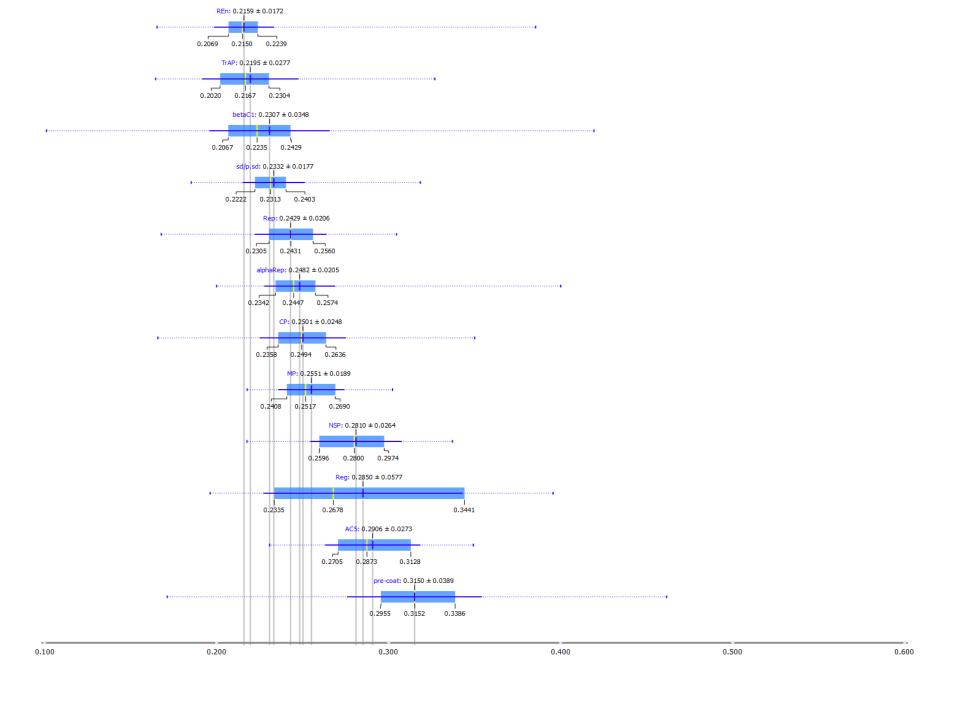




## Proportion of Thymine in region 2

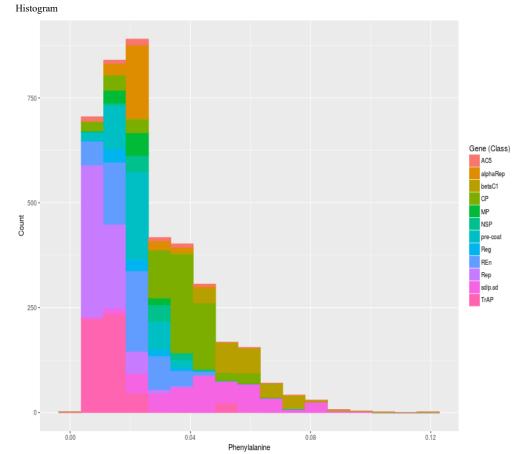


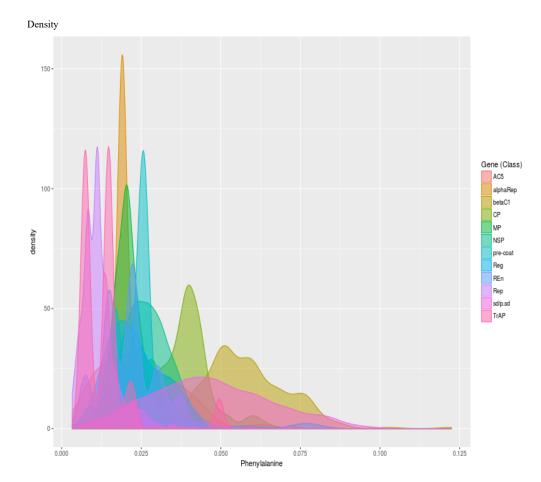




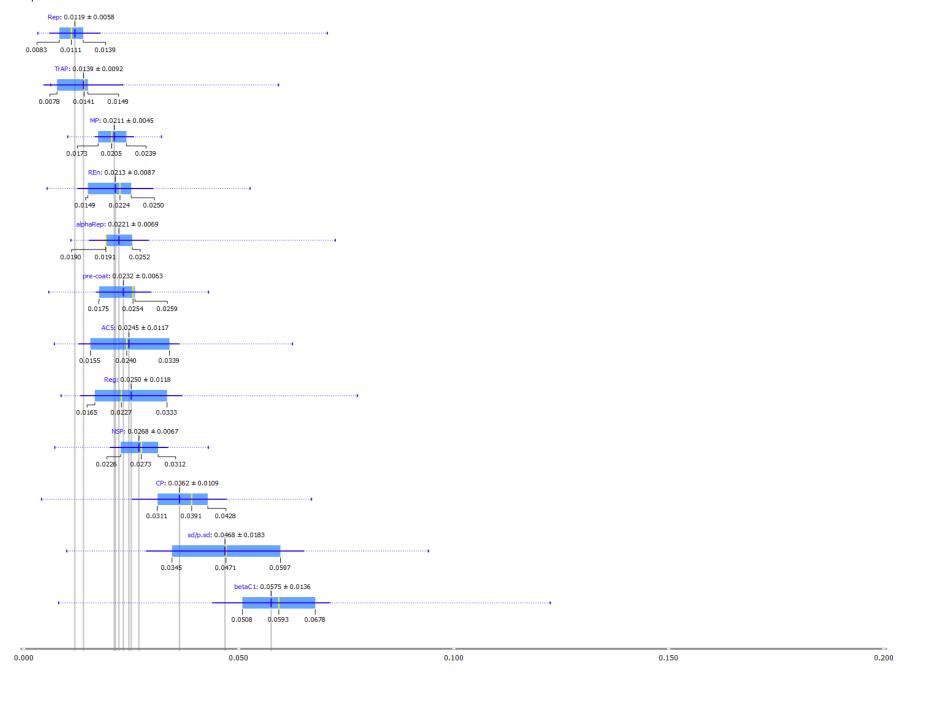
## **Proportion of Phenylalanine**





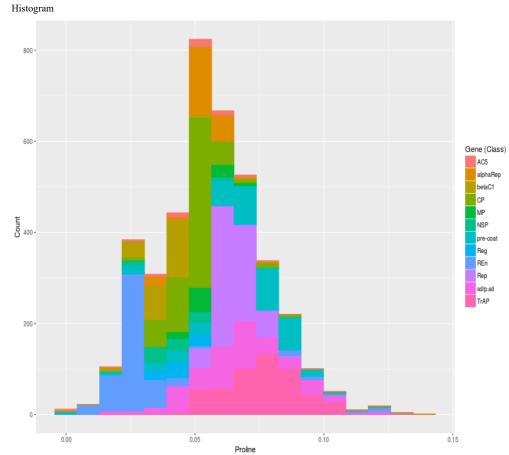


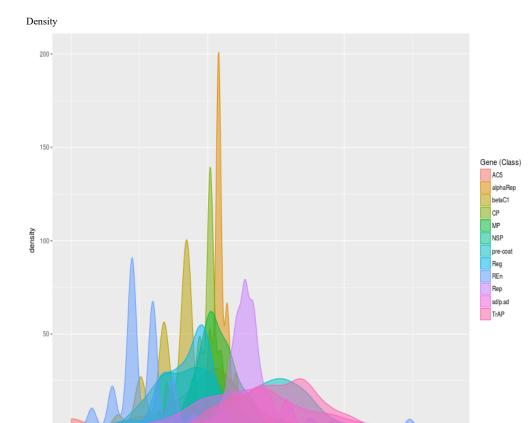
### Boxplots



## **Proportion of Proline**



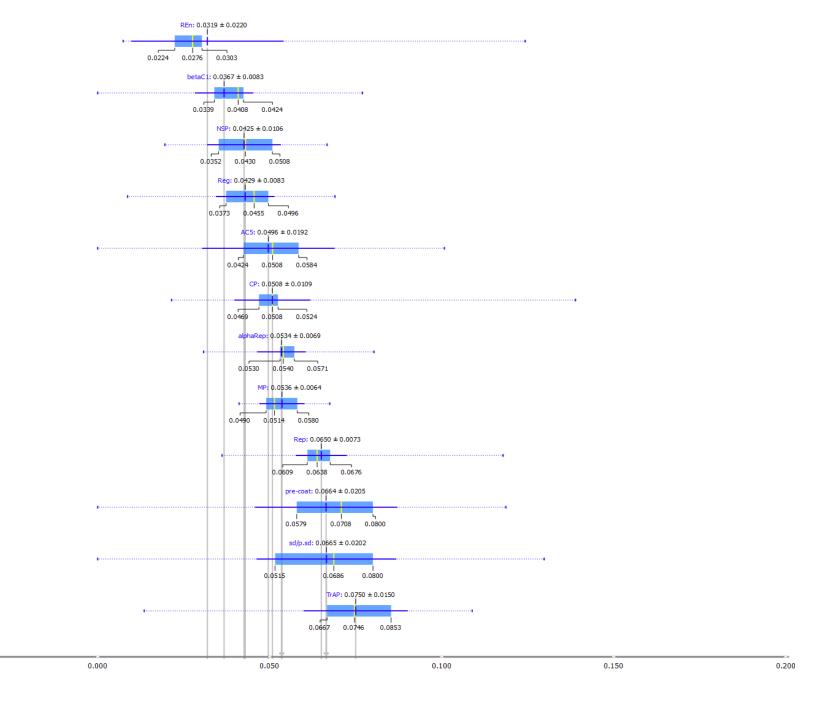




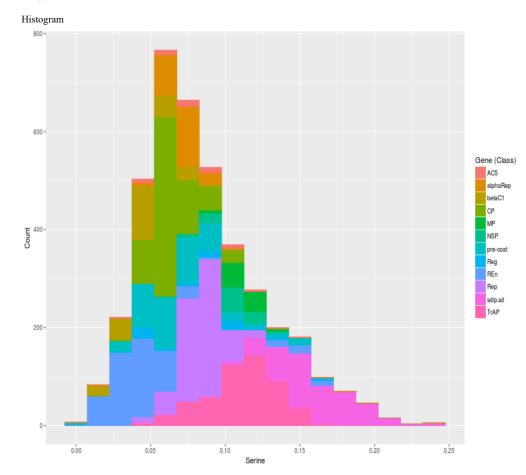
Proline

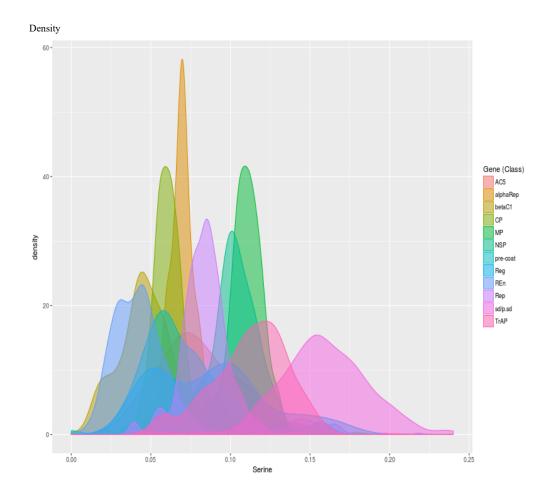
0.10

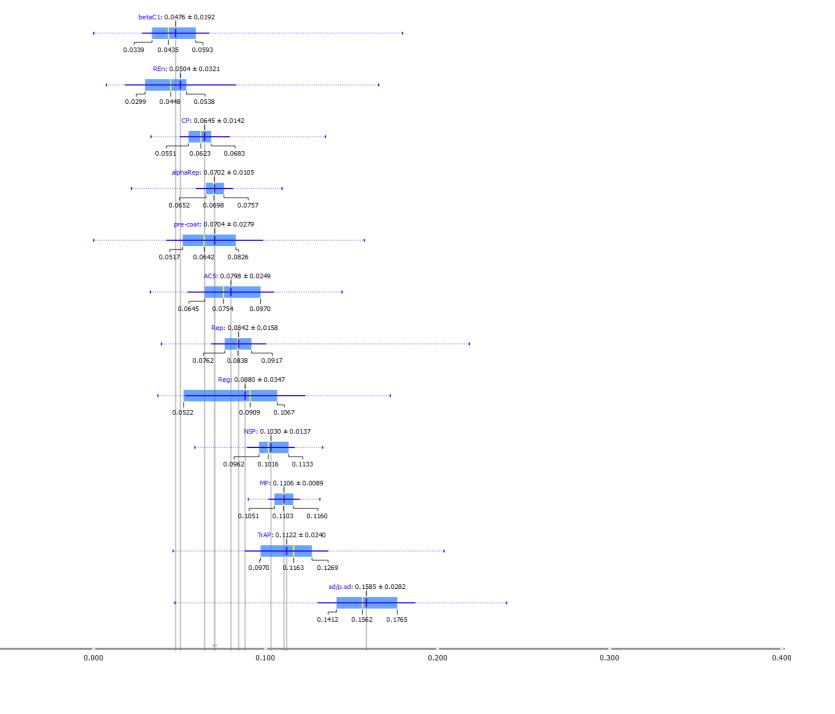
0.05



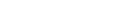
## **Proportion of Serine**

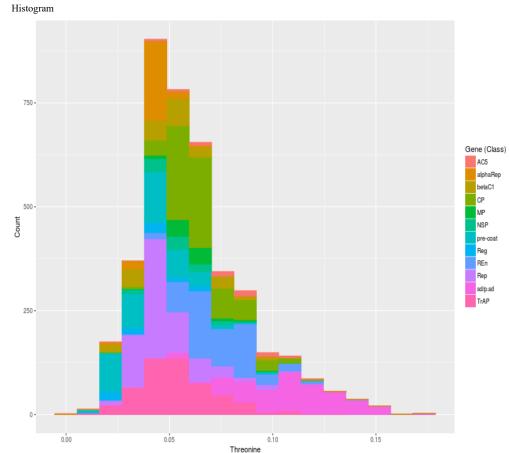


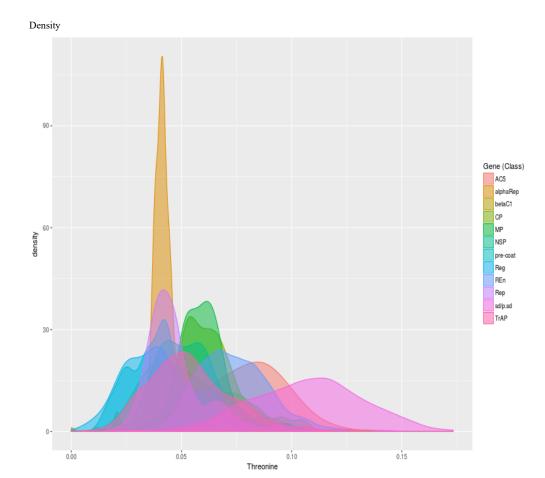


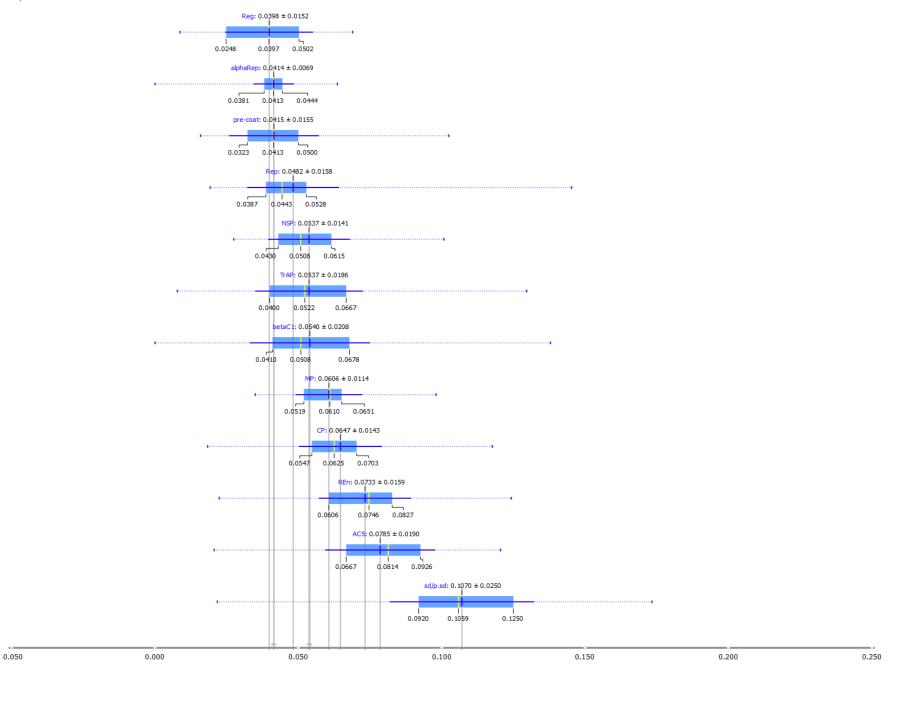


## **Proportion of Threonine**

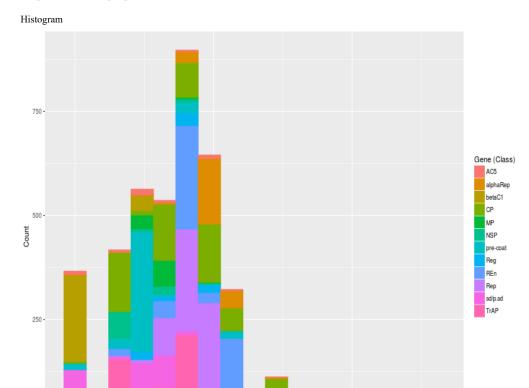








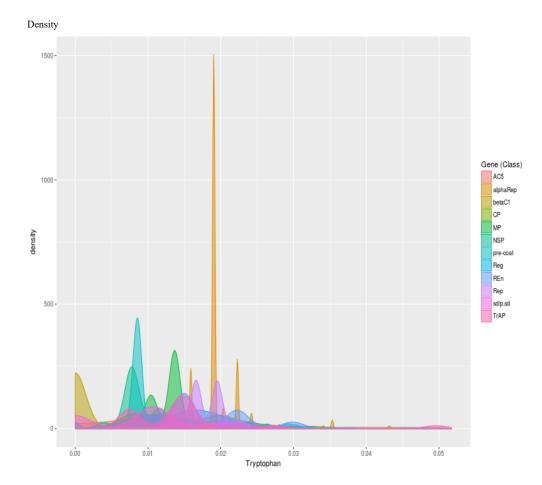
# **Proportion of Tryptophan**

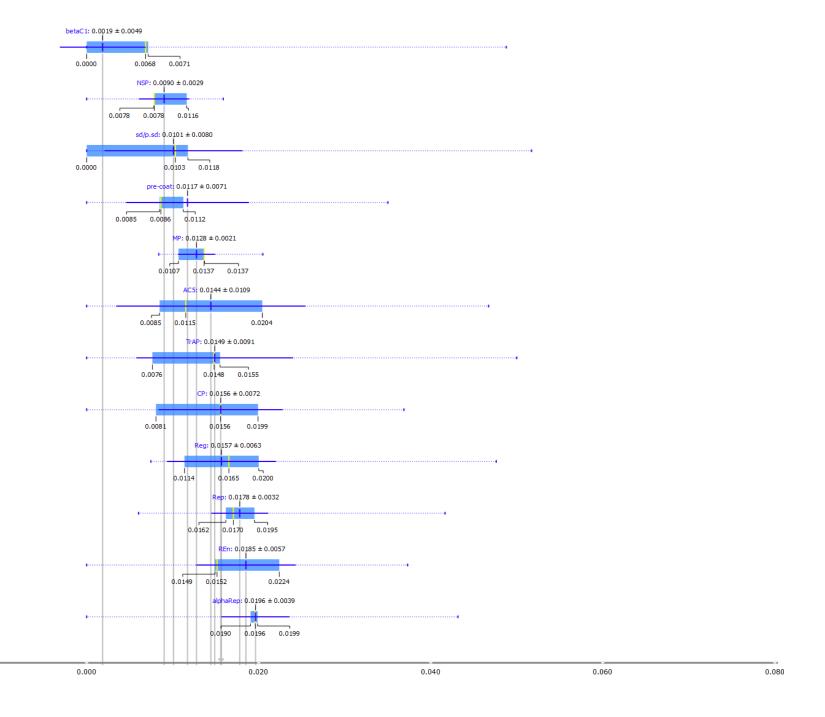


0.04

0.02

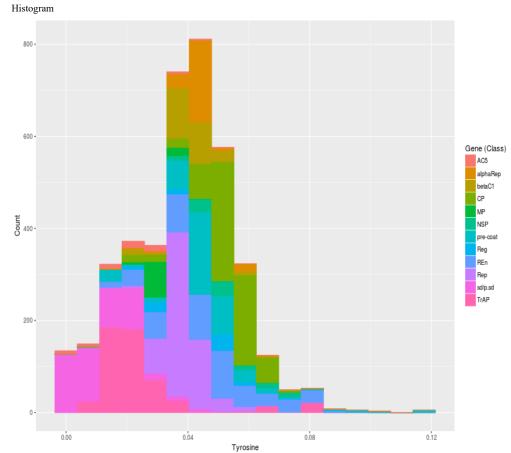
Tryptophan



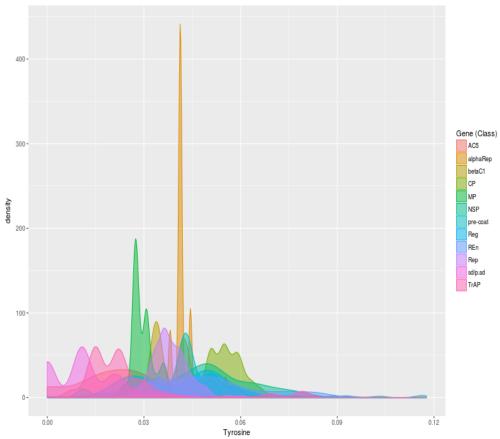


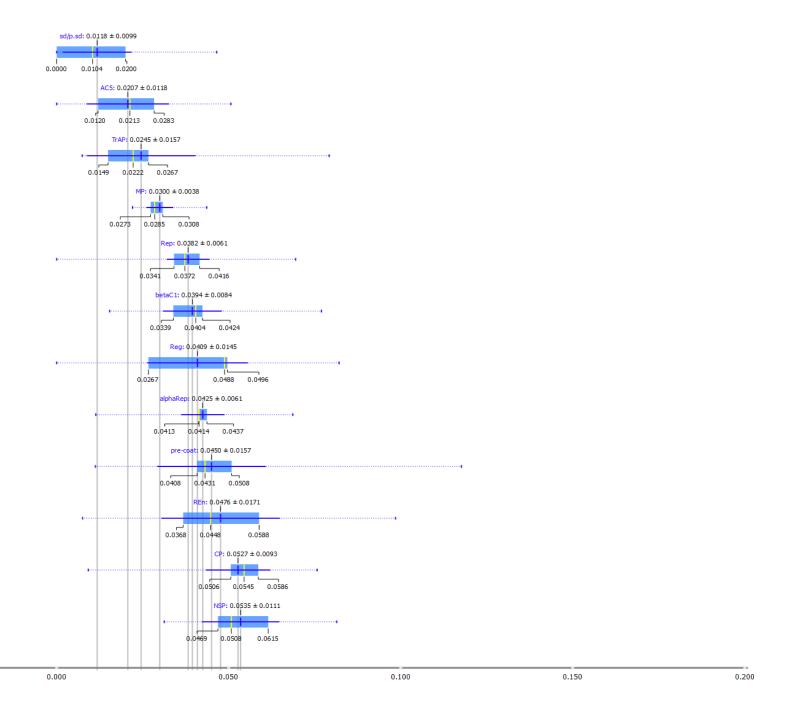
## **Proportion of Tyrosine**





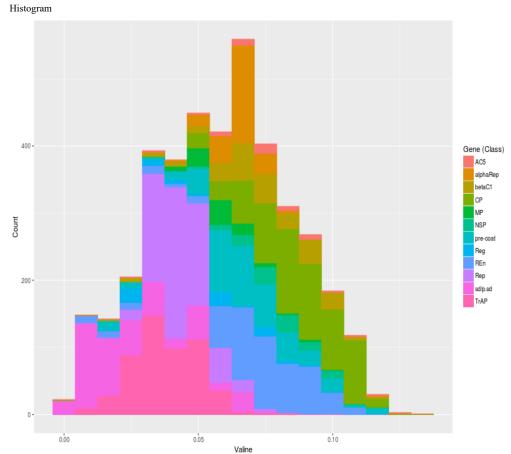


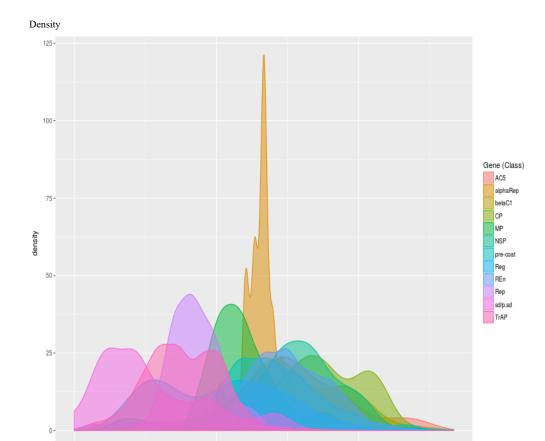




## **Proportion of Valine**







0.10

0.05

Valine

