Pipeline for methylation assay

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#Step 1

```
setwd('.')
suppressMessages(library(minfi))
baseDir <- ('./Input_data')
targets <- read.metharray.sheet(baseDir)
```

```
## [1] "./Input_data/Samplesheet_report_2020.csv"
```

```
RGset <- read.metharray.exp(targets = targets)
save(RGset, file = "RGset.RData")
RGset
```

```
## class: RGChannelSet
## dim: 622399 8
## metadata(0):
## assays(2): Green Red
## rownames(622399): 10600313 10600322 ... 74810490 74810492
## rowData names(0):
## colnames(8): 5775278051_R01C01 5775278051_R04C02 ... 5930514035_R04C02
##   5930514035_R06C02
## colData names(7): Sample_Name Group ... Basename filenames
## Annotation
##   array: IlluminaHumanMethylation450k
##   annotation: ilmn12.hg19
```

```
Red <- data.frame(getRed(RGset))
Green <- data.frame(getGreen(RGset))
```

Fill the following table: what are the Red and Green fluorescences for the address assigned to you? Optional: check in the manifest file if the address corresponds to a Type I or a Type II probe and, in case of Type I probe, report its color.

```
probes_I <- getProbeInfo(RGset, type = 'I')
probes_II <- getProbeInfo(RGset, type = 'II')
probes_I[probes_I$AddressA == 10633381,]
```

```
## DataFrame with 0 rows and 8 columns
```

```
probes_I[probes_I$AddressB == 10633381,]
```

```
## DataFrame with 1 row and 8 columns
##          Name    AddressA    AddressB       Color       NextBase
##   <character> <character> <character> <character> <DNAStringSet>
## 1  cg03868159    21656441    10633381         Red               A
##                 ProbeSeqA               ProbeSeqB      nCpG
```

```
##            <DNAStringSet>          <DNAStringSet> <integer>
## 1 CTAAACATCC...AACTATACCA CTAAACGTCC...AACTATACCG         2
```

```
probes_II[probes_II$AddressA == 10633381,]
```

```
## DataFrame with 0 rows and 4 columns
```

```
Red[rownames(Red) == '10633381',]
```

```
##          X5775278051_R01C01 X5775278051_R04C02 X5775278078_R02C01
## 10633381               1852               1694               1354
##          X5775278078_R05C01 X5775278078_R05C02 X5930514034_R01C02
## 10633381               1091               1131                796
##          X5930514035_R04C02 X5930514035_R06C02
## 10633381                894               1149
```

```
Green[rownames(Green) == '10633381',]
```

```
##          X5775278051_R01C01 X5775278051_R04C02 X5775278078_R02C01
## 10633381                458                631                358
##          X5775278078_R05C01 X5775278078_R05C02 X5930514034_R01C02
## 10633381                396                424                302
##          X5930514035_R04C02 X5930514035_R06C02
## 10633381                354                479
```

We can see it's a type I infinium with the Red channel.

Sample	Row	Column	Red Intensity	Green Intensity	Type	Color
5775278051	1	1	1852	458	I	Red
5775278051	4	2	1694	631	I	Red
5775278078	2	1	1354	358	I	Red
5775278078	5	1	1091	396	I	Red
5775278078	5	2	1131	424	I	Red
5930514034	1	2	796	302	I	Red
5930514035	4	2	894	354	I	Red
5930514035	6	2	1149	479	I	Red